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# Patent Information Tools

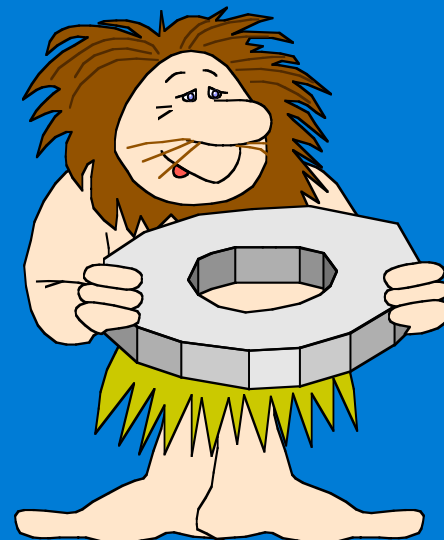
**For Patent Assistance:**

**Joanne Tobin**

**Information Services Department**

**[joanne.tobin@library.gatech.edu](mailto:joanne.tobin@library.gatech.edu)**

**404-894-1395**

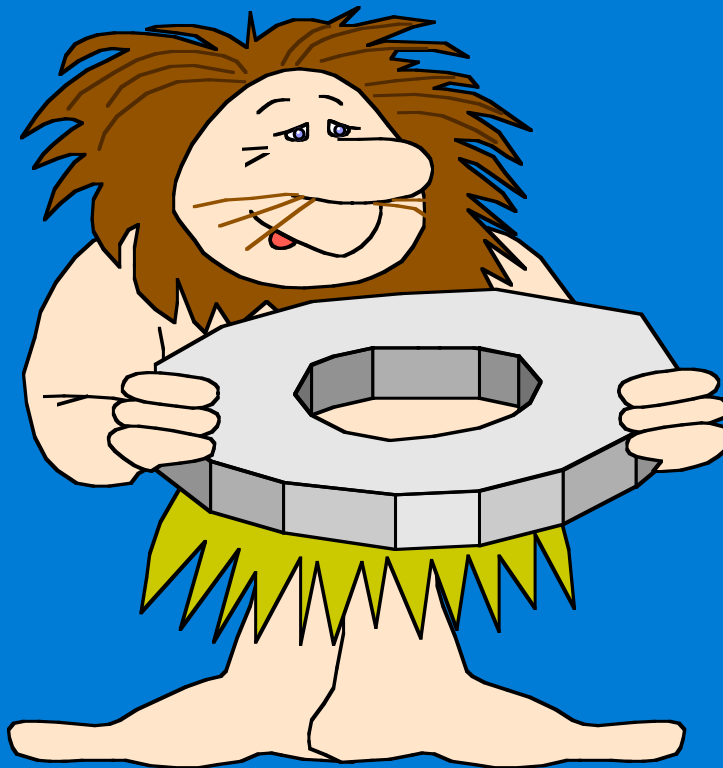


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# Intellectual Property

- Intellectual property refers to creations of the mind: inventions, literary and artistic works, and symbols, names, images, and designs used in commerce.
- Industrial property, which includes inventions (patents), trademarks, industrial designs
- Literary and artistic works

# Patents



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# What Is A Patent?

- A grant of a property right giving the inventor of “any new and useful process, machine, manufacture, or composition of matter or any new and useful improvements thereof” the right to exclude all others from making, using or selling the invention without his or her permission for the life of the patent.

for General Information Concerning Patents

Washington, DC: Dept of Commerce, US Patent and Trademark Office, 1994.

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# Who Uses Patents?

- Inventors--to perform patentability searches & protect their ideas



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## Who Uses Patents

- Companies--to insure they do not infringe on existing patents as they launch new product lines
- Investors--to estimate the intellectual assets of a venture

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## Who Uses Patents

- Students and industry researchers--to see what others have done to solve a particular design need.
- Historical and genealogical researchers--to learn of the development of a technology or an historical figure's accomplishments.



# Patent Criteria

- Timeliness--the invention must be new
- Uniqueness
- Detail--the patent must reveal enough about how the invention works so that someone skilled in the field could reproduce the invention
- *Caveat*--This requirement does not mean patent documents are easy to read, however.



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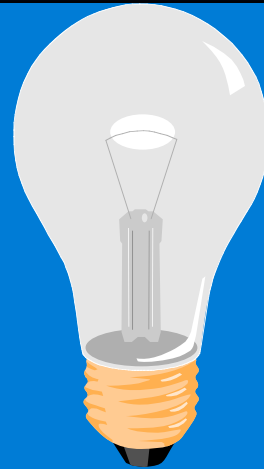
# Types of Patents

- Utility Patents
- Design Patents
- Plant Patents

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# Examples of Patents: Utility

- Process
- Machine
- Manufacture
- Composition of Matter
- Improvements on any of the above



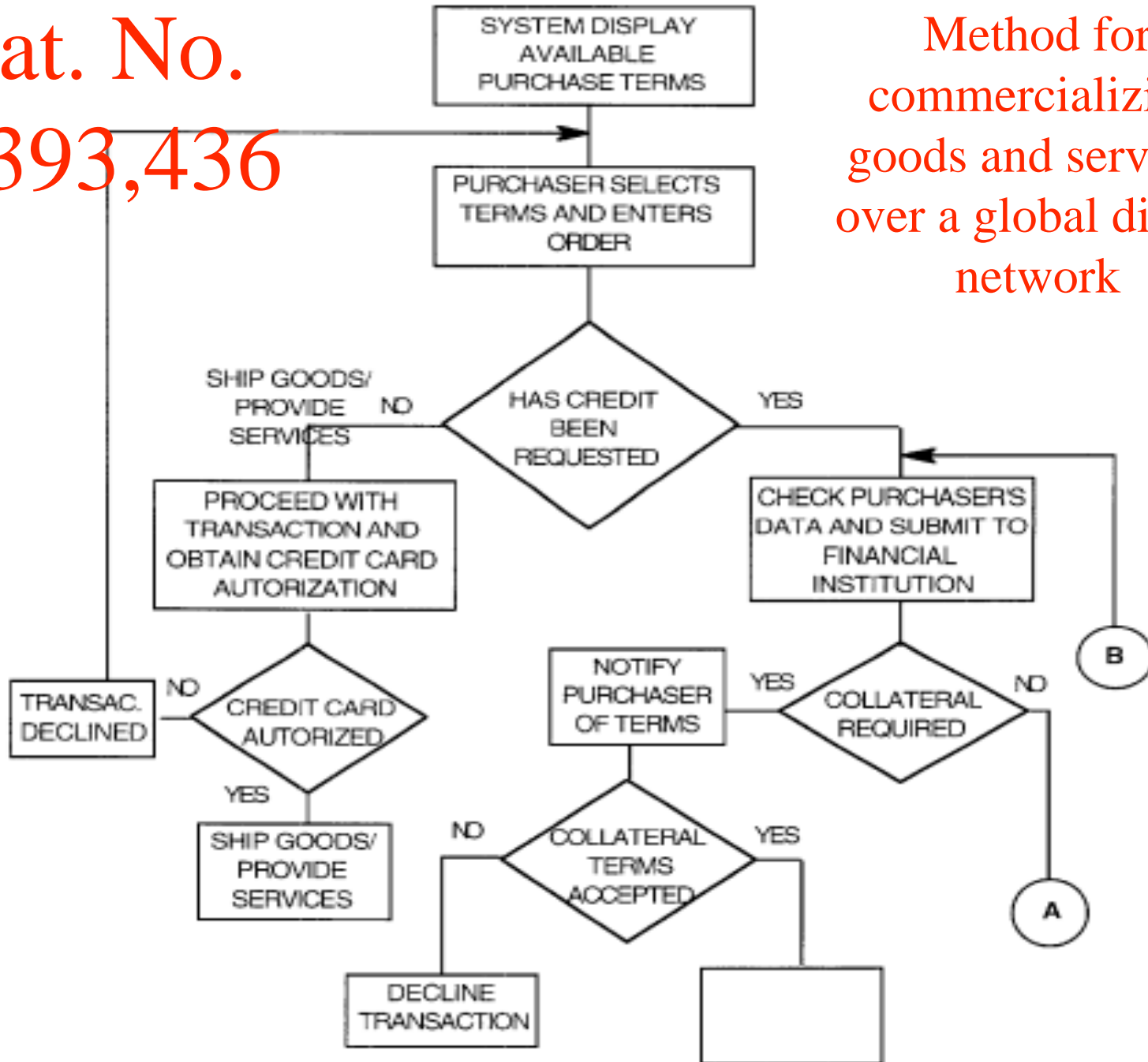
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# Process Statutory Class

- Chemical Reactions
- Business Methods - Only computer programs that affect hardware or process
- Manual Process - Must have a useful purpose

Pat. No.  
6,393,436

# Method for commercializing goods and services over a global digital network



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## Machine Statutory Class

- Emphasis is on parts or hardware
- Conventional machine patents on automobiles, boats, photocopiers.
- Software Machines - can be claimed as a process or a machine statutory class

No. 821,393.

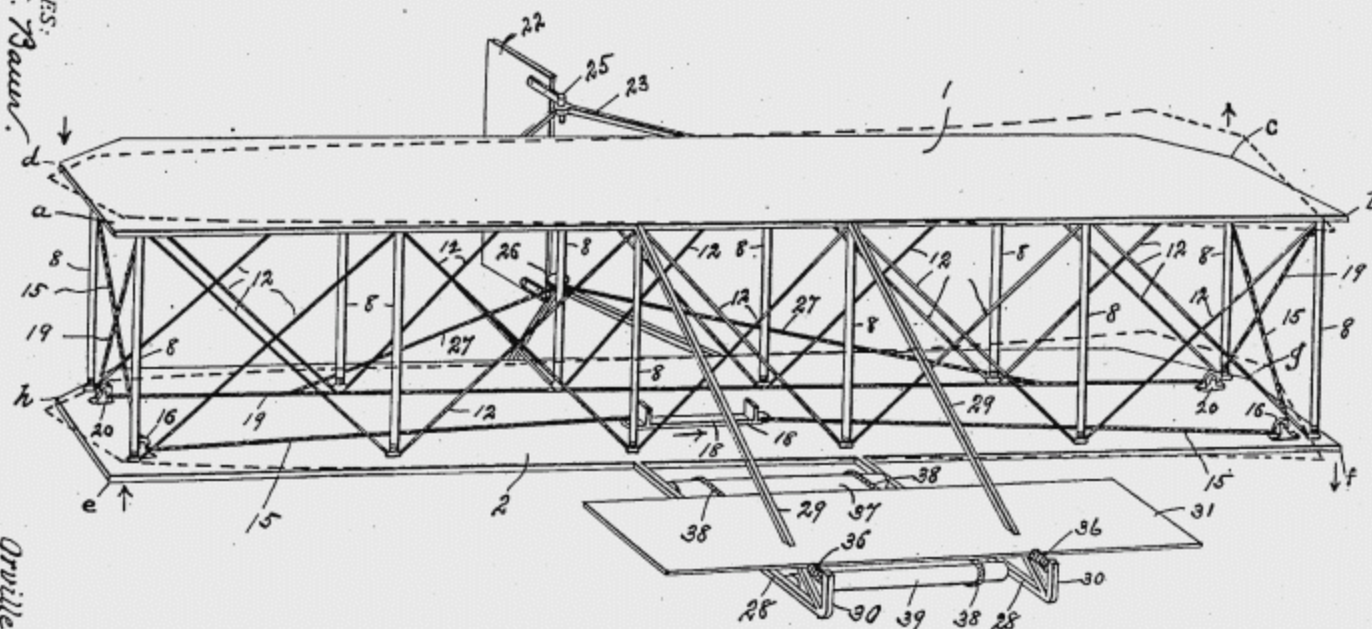
PATENTED MAY 22, 1906.

O. & W. WRIGHT.  
FLYING MACHINE.

APPLICATION FILED MAR. 23, 1903.

3 SHEETS—SHEET 1.

FIG. 1.



Wright Brothers Flying Machine  
Patent # 821,393 (1906)



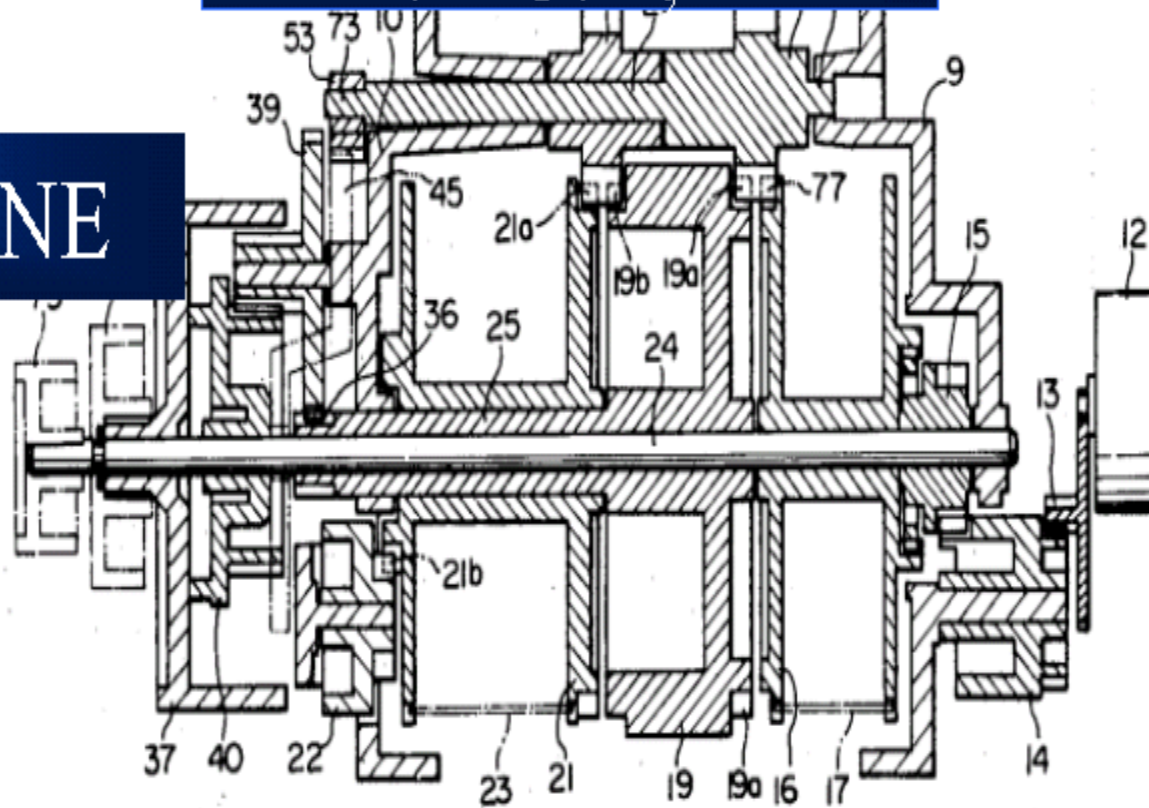
WITNESSES:  
William F. Bauer.  
Charles Miller.

INVENTORS.  
Orville Wright.  
Wilbur Wright.  
BY *H. A. Davidson*  
ATTORNEY.

# DIGITAL CLOCK

PAT. NO. 4,609,72

MACHINE



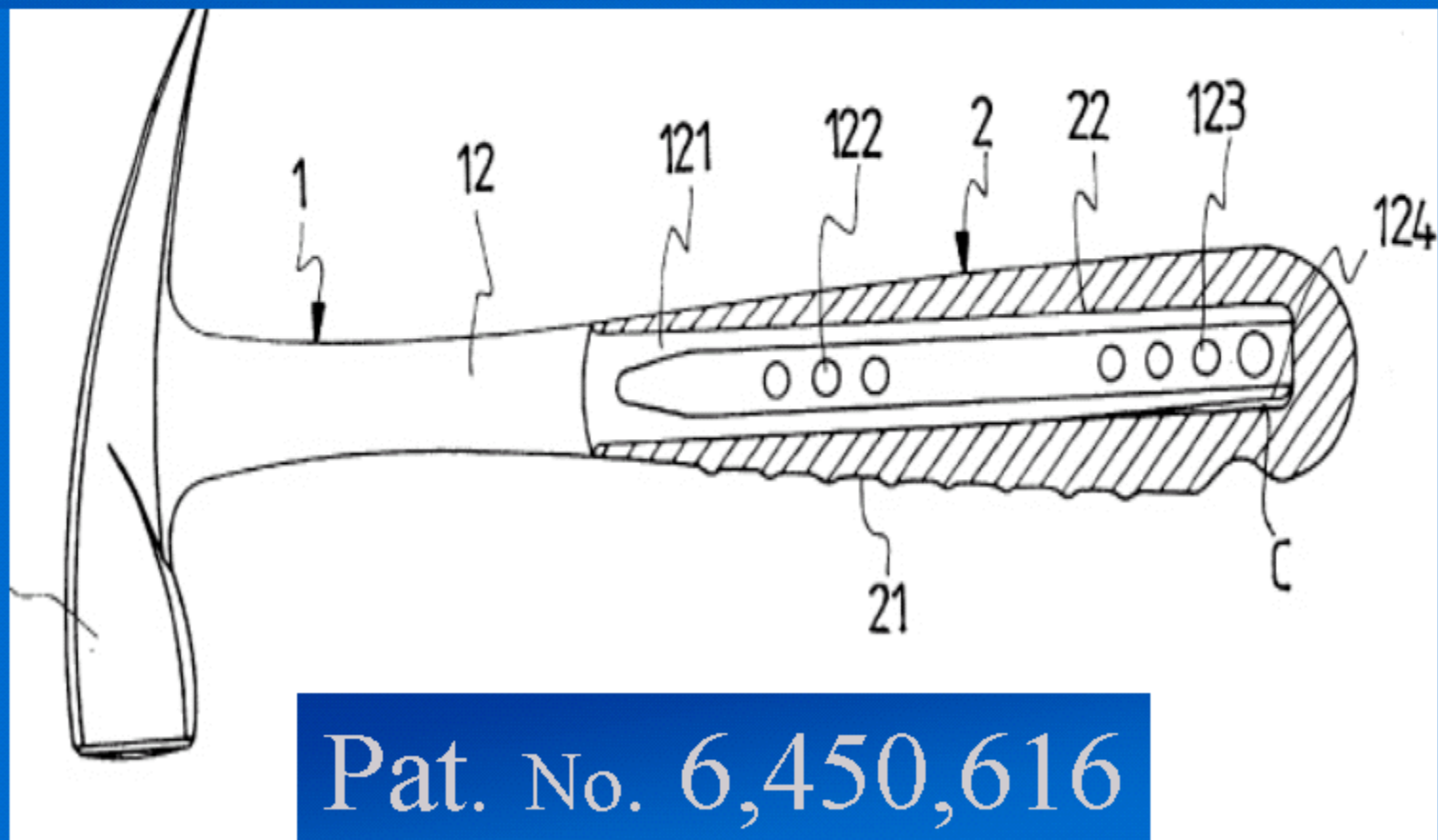
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# Manufacture Statutory Class

- Things made by human hands or machines
- examples - erasers, books, chairs, floppy disks....



# Manufacture Hammer



# Composition of Matter Statutory Class

- Chemical compositions, conglomerates, aggregates, supplied in bulk in solid, liquid or gaseous form
- examples - all chemicals, soap, drugs, road-building compositions

# Electronic Orange Book

## Approved Drug Products with Therapeutic Equivalence Evaluations

Current through June 2008\*\*

\*\* In order to provide timely consumer information on generic drugs, the Electronic Orange Book is updated daily as new generic approvals occur. Refer to [FAQ](#) for additional information.

[Publications](#)

[FAQ](#)

[Search by Active Ingredient](#)

[Search by Applicant Holder](#)

[Search by Proprietary Name](#)

[Search by Application Number](#)

[Search by Patent](#)

The products in this list have been approved under section 505 of the Federal Food, Drug, and Cosmetic Act.

Drug questions email: [druginfo@fda.hhs.gov](mailto:druginfo@fda.hhs.gov)

U.S. Department of Health and Human Services  
Food and Drug Administration  
Center for Drug Evaluation and Research  
Office of Pharmaceutical Science  
Office of Generic Drugs

[www.fda.gov/cder/ob](http://www.fda.gov/cder/ob)

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Proprietary Name Search Results from "OB\_Rx" table for query on "Tamiflu."

Appl No	TE Code	RLD	Active Ingredient	Dosage Form; Route	Strength	Proprietary Name	Applicant
<a href="#">021087</a>		No	OSELTAMIVIR PHOSPHATE	CAPSULE; ORAL	EQ 30MG BASE	TAMIFLU	ROCHE
<a href="#">021087</a>		No	OSELTAMIVIR PHOSPHATE	CAPSULE; ORAL	EQ 45MG BASE	TAMIFLU	ROCHE
<a href="#">021087</a>		Yes	OSELTAMIVIR PHOSPHATE	CAPSULE; ORAL	EQ 75MG BASE	TAMIFLU	ROCHE
<a href="#">021246</a>		Yes	OSELTAMIVIR PHOSPHATE	FOR SUSPENSION; ORAL	EQ 12MG BASE/ML	TAMIFLU	ROCHE

[Return to Electronic Orange Book Home Page](#)

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FDA/Center for Drug Evaluation and Research

Office of Generic Drugs

Division of Labeling and Program Support

Update Frequency:

Orange Book Data - **Monthly**

Generic Drug Product Information & Patent Information - **Daily**

Orange Book Data Updated Through June, 2008

Patent and Generic Drug Product Data Last Updated: July 23, 2008

Ingredient: OSELTAMIVIR PHOSPHATE  
Form;Route: CAPSULE; ORAL  
Sponsor Name: TAMIFLU  
Manufacturer: ROCHE  
Strength: EQ 75MG BASE  
NDA Number: 021087  
Product Number: 001  
Approval Date: Oct 27, 1999  
Previously Listed Drug: Yes  
OTC/DISCN: RX

Product Details:  
Patent and Exclusivity Info for this product: [View](#)



## Result of Tamiflu Search

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Ingredient: OSELTAMIVIR PHOSPHATE  
Form;Route: CAPSULE; ORAL  
Sponsor Name: TAMIFLU  
Manufacturer: ROCHE  
Strength: EQ 45MG BASE  
NDA Number: 021087  
Product Number: 002  
Approval Date: Jul 2, 2007  
Previously Listed Drug: No  
OTC/DISCN: RX

## CARBOCYCLIC COMPOUNDS

## BACKGROUND OF THE INVENTION

## CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority from U.S. Provisional Application Ser. No. 60/009,306, filed Dec. 29, 1995.

## FIELD OF THE INVENTION

Neuraminidase (also known as sialidase, acylneuraminyl hydrolase, and EC 3.2.1.18) is an enzyme common among animals and a number of microorganisms. It is a glycohydrolase that cleaves terminal alpha-ketosidically linked sialic acids from glycoproteins, glycolipids and oligosaccharides. Many of the microorganisms containing neuraminidase are pathogenic to man and other animals including fowl, horses, swine and seals. These pathogenic organisms include influenza virus.

Neuraminidase has been implicated in the pathogenicity of influenza virus. It is thought to help the elution of newly synthesized virions from infected cells and assist in the movement of the virus (through its hydrolase activity) through the mucus of the respiratory tract.

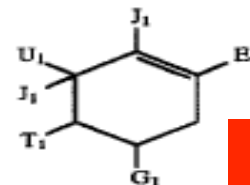
Inhibition of glycolytic enzymes such as neuraminidase is an object of the invention.

An additional object of the invention is to provide neuraminidase inhibitors that exhibit lengthy biological half-lives compared to known compounds.

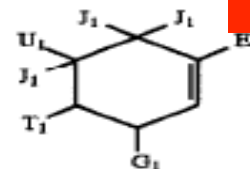
Another object is to provide improved and less costly methods for synthesis of neuraminidase inhibitors.

A further object is to provide such inhibitors having elevated potency, substantial oral bioavailability (>15%) and clinically acceptable or absent toxicity compared to known compounds.

An additional object is to provide compositions useful in preparing polymers, surfactants, immunogens and for use in other industrial processes and articles as will be readily



or

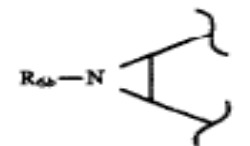


wherein

E<sub>1</sub> is  $-(CR_1R_1)_{m_1}W_1$ ;

G<sub>1</sub> is N<sub>3</sub>,  $-CN$ ,  $-OH$ ,  $-OR_{6a}$ ,  $-NO_2$ , or  $-(CR_1R_1)_{m_1}W_2$ ;

T<sub>1</sub> is  $-NR_1W_3$ , a heterocycle, or is taken together with U<sub>1</sub> or G<sub>1</sub> to form a group having the structure



U<sub>1</sub> is H or  $-X_1W_6$ ;

J<sub>1</sub> is independently H, F or Cl;

R<sub>1</sub> is independently H or alkyl of 1 to 12 carbon atoms;

R<sub>2</sub> is independently R<sub>3</sub> or R<sub>4</sub> wherein each R<sub>4</sub> is independently substituted with 0 to 3 R<sub>3</sub> groups;

R<sub>3</sub> is independently F, Cl, Br, I,  $-CN$ , N<sub>3</sub>,  $-NO_2$ ,  $-OR_{6a}$ ,  $-OR_1$ ,  $-N(R_1)_2$ ,  $-N(R_1)(R_{6a})$ ,  $-N(R_{6a})_2$ ,  $-SR_1$ ,  $-SR_{6a}$ ,  $-SOR_1$ ,  $-S(O)_2R_1$ ,  $-S(O)R_{6a}$ ,  $-S(O)_2R_{6a}$ ,  $-C(O)OR_1$ ,  $-C(O)R_{6a}$ ,  $-C(O)OR_{6a}$ ,  $-OC(O)R_1$ ,  $-NR_1C(O)R_1$ ,  $-N(R_{6a})C(O)R_1$ ,  $-C(O)N(R_1)_2$ ,  $-C(O)N(R_{6a})(R_1)$ ,  $-C(O)N(R_{6a})_2$ ,  $-C(NR_1)(N(R_1)_2)$ ,  $-C(N(R_{6a}))(N(R_{6a})_2)$ ,  $-N(R_1)C(N(R_1))(N(R_1)(R_{6a}))$ ,  $-N(R_1)C(N(R_1)_2)$ ,  $-N(R_1)C(N(R_1))(N(R_1)(R_{6a}))$ .

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## Improvements on Any of the Other Statutory Classes

- Discovery of a new use for something that is very old.
- example - you discover that a machine that you use to clean venetian blinds can also be used to plant seeds



# PATENT TERMS

- Utility and plant patents issued since June 8, 1995 expire 20 years from the date of application with the payment of maintenance fees.
- Utility and plant patents issued prior to June 8, 1995 expire 17 years from the date of issue with the payment of maintenance fees.
- Design patent expire 14 years from the date of issue.
- Patents are not renewable. Under special circumstances, a patent term may be extended.





# INVENTIONS THAT WILL NOT BE GRANTED A PATENT

- Unsafe drugs
- Non-operable inventions (the perpetual motion machine)
- Nuclear Weapons
- Theoretical phenomena (superconductivity)

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# MORE EXAMPLES OF UTILITY PATENTS

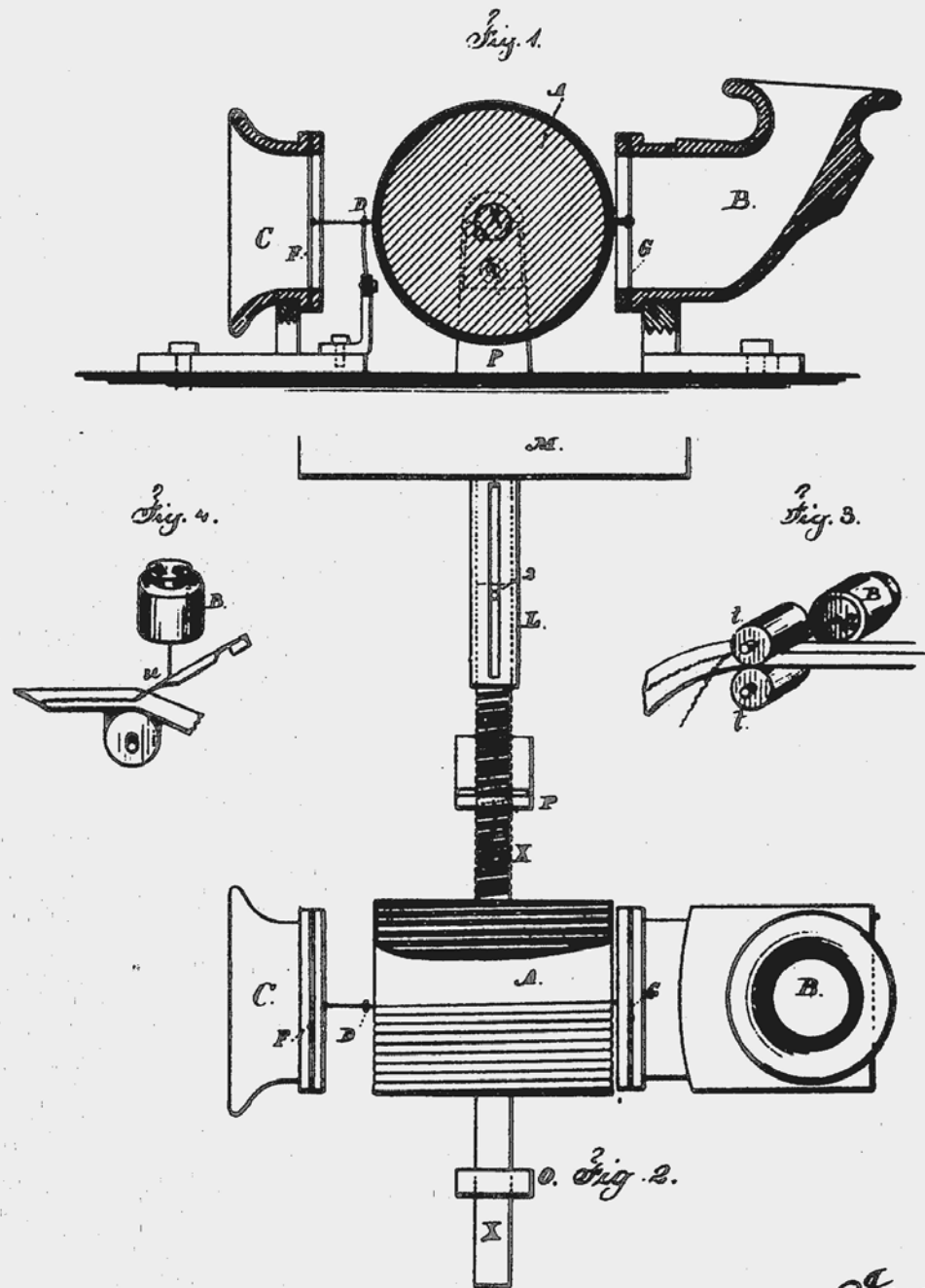


T A. EDISON.  
Phonograph or Speaking Machine.  
No. 200,521. Patented Feb. 19, 1878.

# Thomas Edison Phonograph

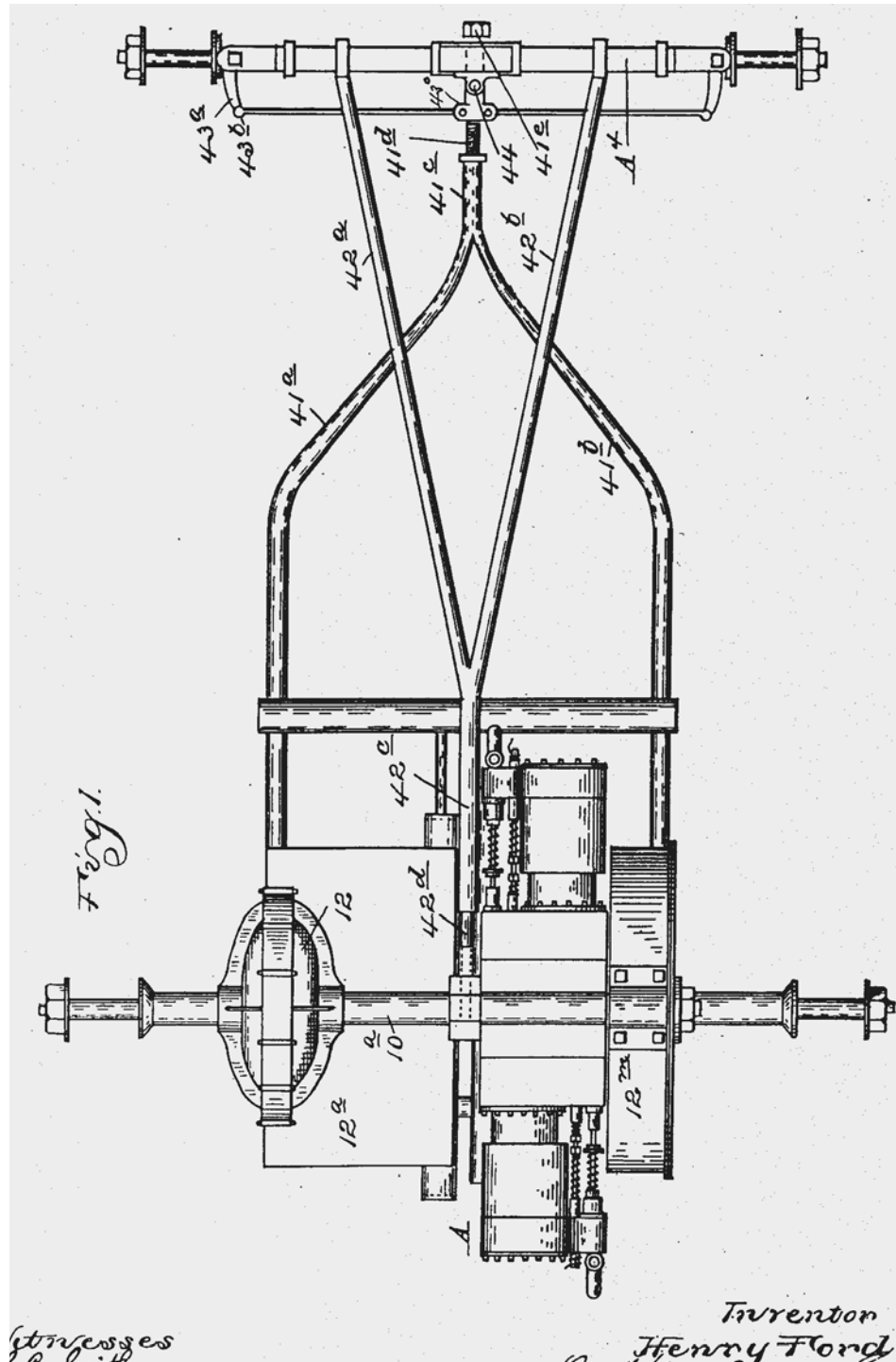
Patent # 200,521

1878



Witnesses

Inventor  
Thomas A. Edison.



# Henry Ford

## Motor Carriage

### Automobile Chassis

Patent # 686,046  
1901



# Samuel L. Clemens Suspenders

Patent # 121,992

1871

(38.)

SAMUEL L. CLEMENS.

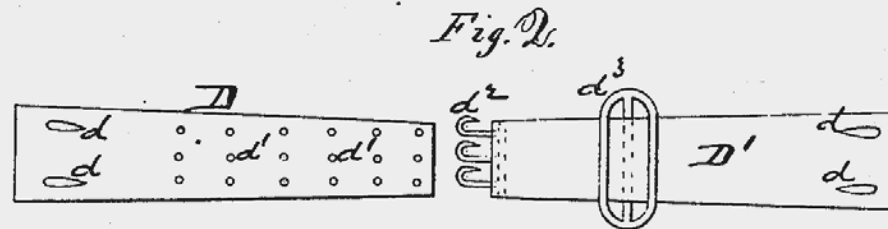
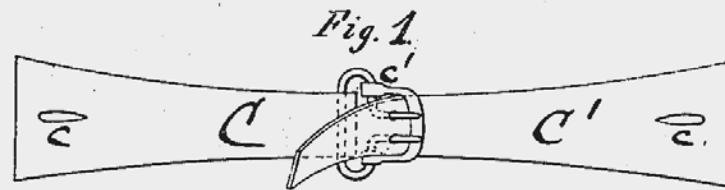
Improvement in Adjustable and Detachable Straps for Garments.

No. 119,322.

Patented Sep. 26, 1871.

No. 121,992.

Patented Dec. 19, 1871.



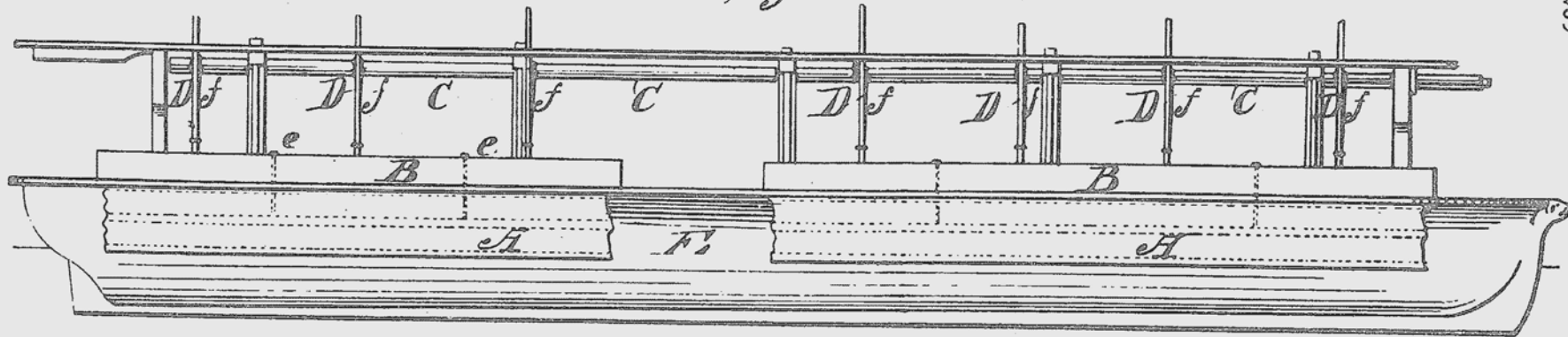
esses:

by A. Miller

Inventor

Sam. L. Clemens

*Fig. 1.*

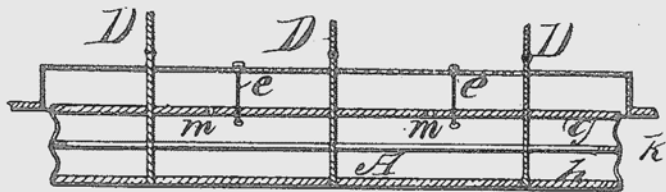


6,469

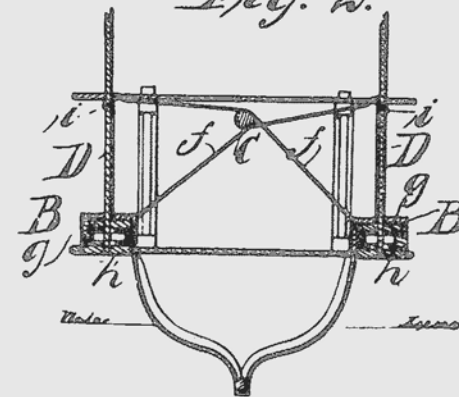
ABRAHAM LINCOLN  
MANNER OF BOUYING VESSELS

Patented May 22, 1849

*Fig. 3.*



*Fig. 2.*



**Abraham Lincoln. Manner of Bouying Vessels.**

Patent #6,469 1849

# WILL YOUR INVENTION SELL?

- A patent does not guarantee commercial success.
- Consider factors affecting marketability such as cost, novelty, ease of use...
- Build and test a working model



# Fire Escape

1909 #912,152

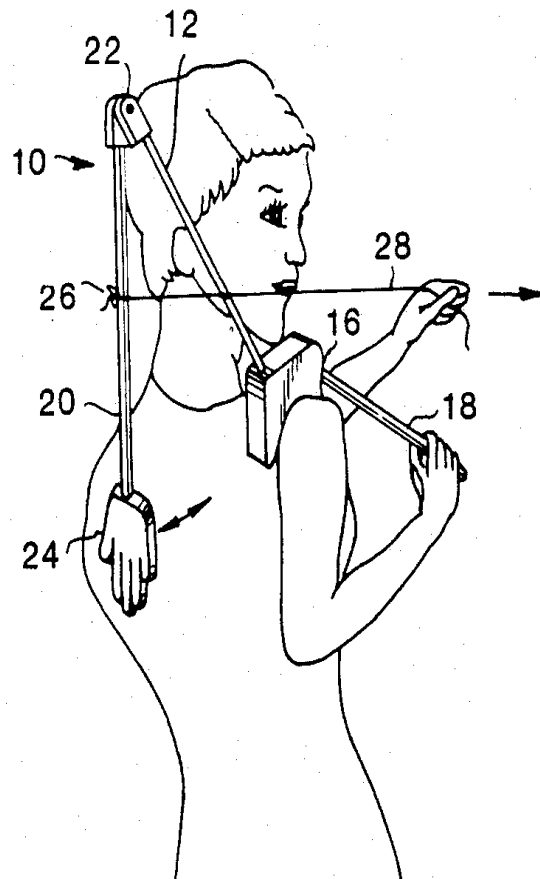




Pat. No. 4,608,967

# Pat on the Back Apparatus

FIG. 1



Ralph R. Piro

1986

# Fire-Escape

B. B. OPPENHEIMER.  
Fire-Escape.

No. 221,855.

Patented Nov. 18, 1879.

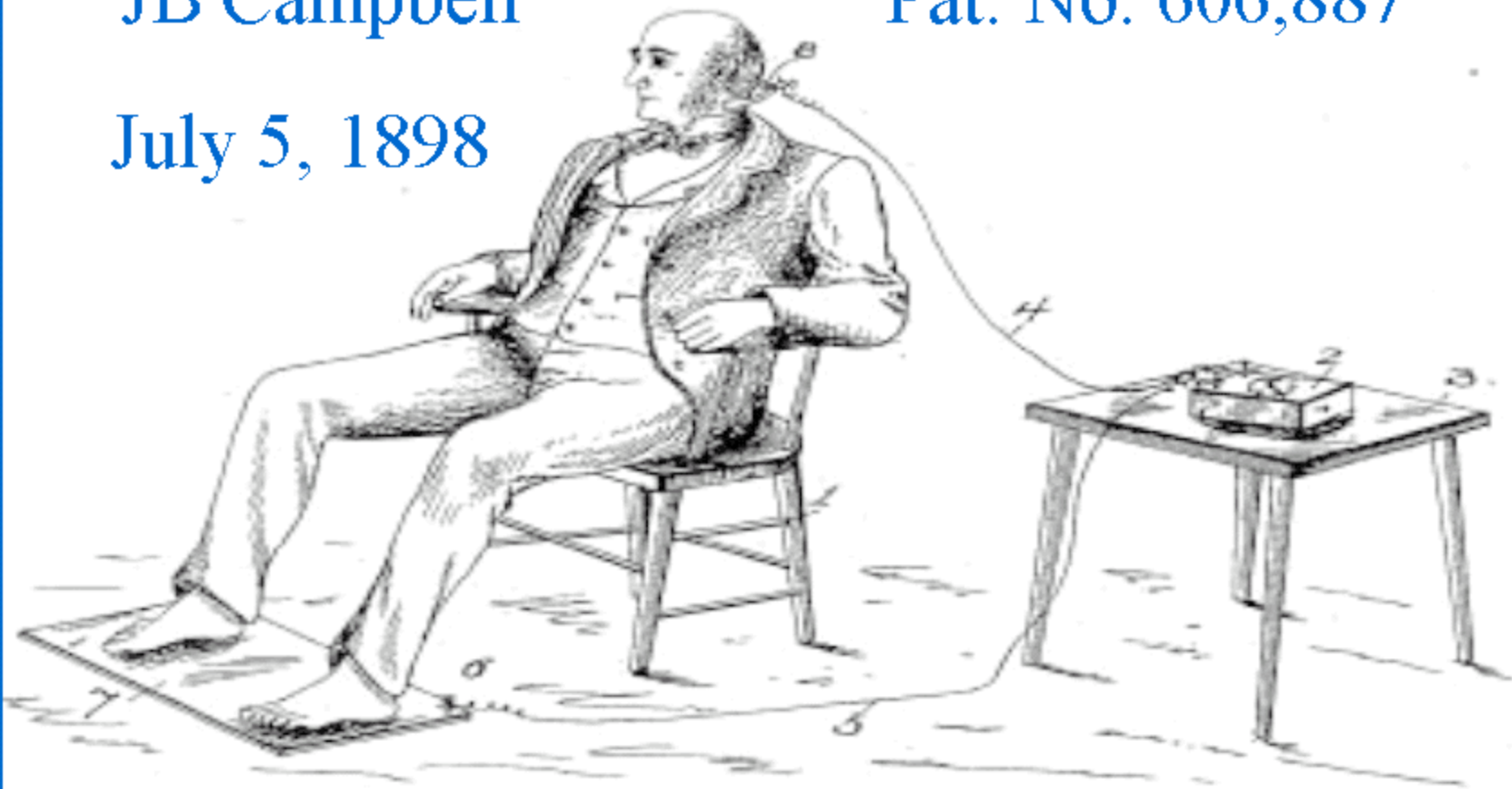


# Electric Extraction of Poisons

JB Campbell

Pat. No. 606,887

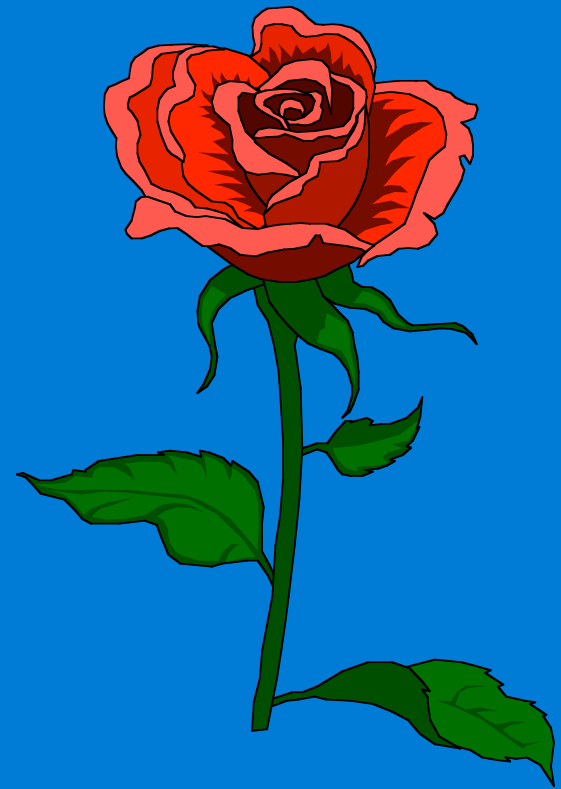
July 5, 1898



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# Examples of Patents: Plants

- Asexually reproduced distinct and new variety of plant



PP12,911 Melody Dixie



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## Examples of Patents: Designs

- Patent protection for only the appearance and not structural or utilitarian features
- Subject matter may relate to the configuration or shape of an article, to the surface ornamentation applied to an article, or both



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Auguste  
Bartholdi

Statue of  
Liberty

Patent # D11,023

1879



Copyright by Blumenthal, Peck and Company, New York, N.Y., 1879.

LIBERTY ENLIGHTENING THE WORLD.

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# Congressional Medal of Honor

Patent # D37,236

1904

No. 37,236.

DESIGN.

PATENTED NOV. 22, 1904.

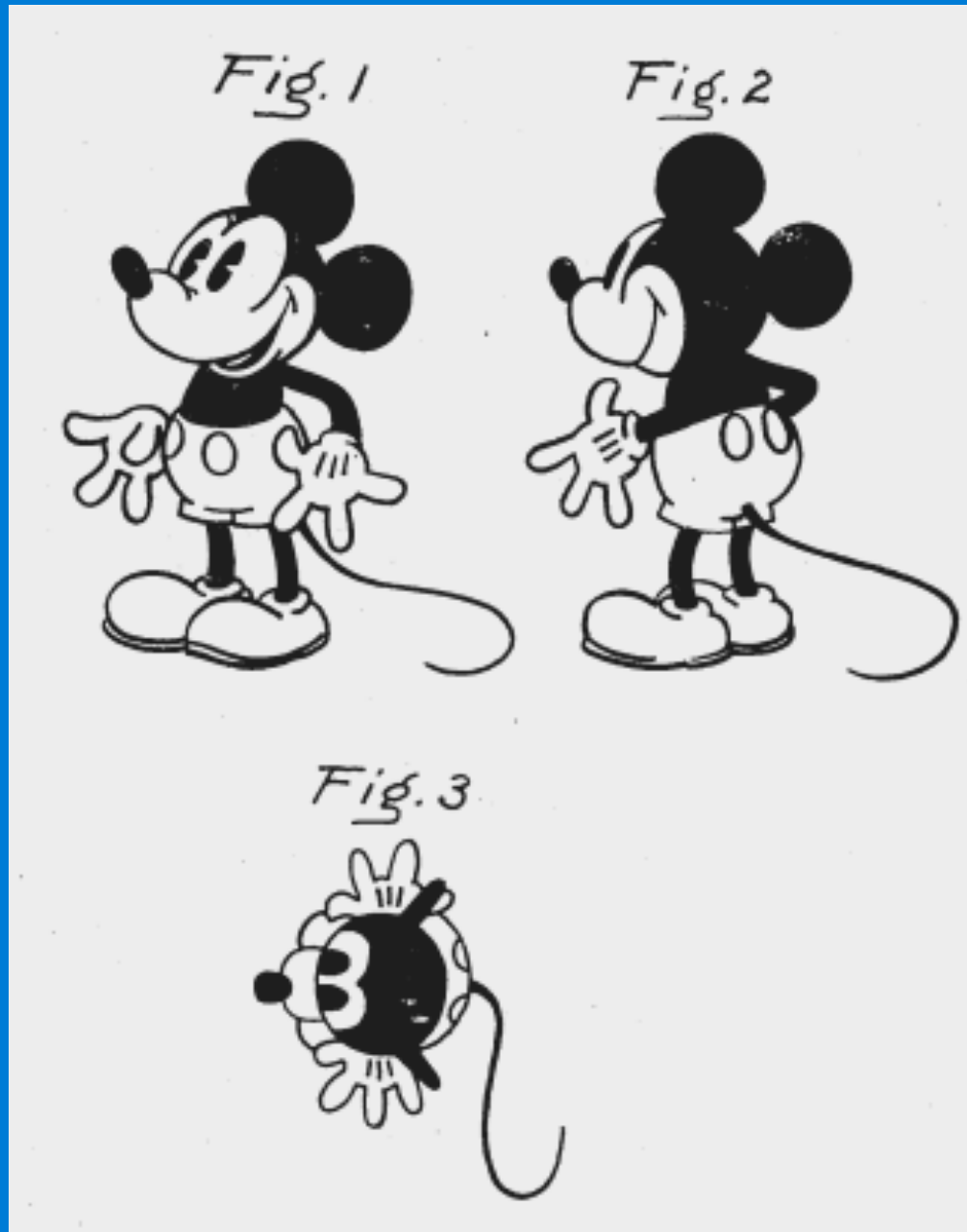
G. L. GILLESPIE.

BADGE.

APPLICATION FILED MAR. 9, 1904.







Design Patent D82,802

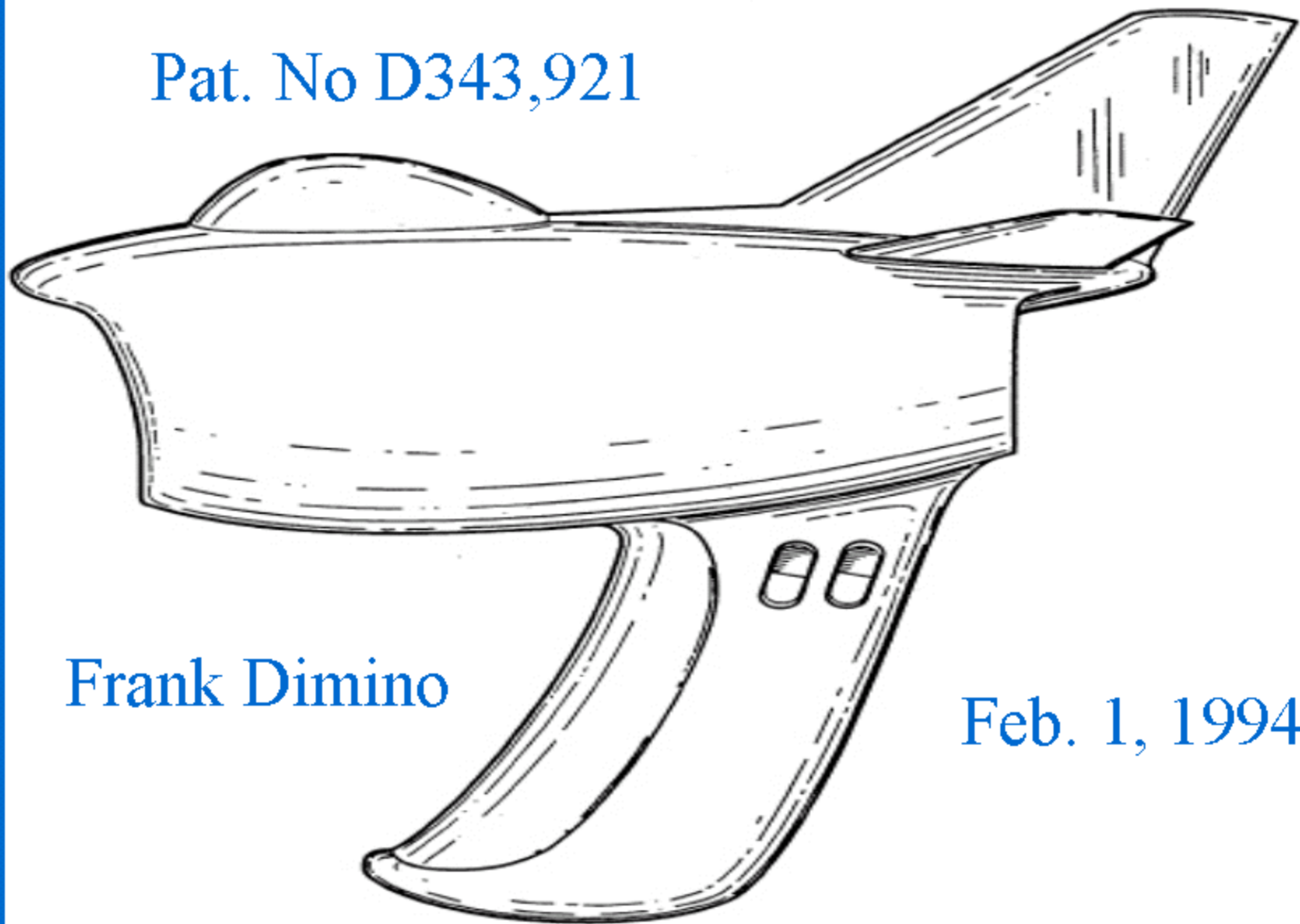
1930

W. E. Disney

Toy or Similar Article

# Airplane Hairdryer

Pat. No D343,921



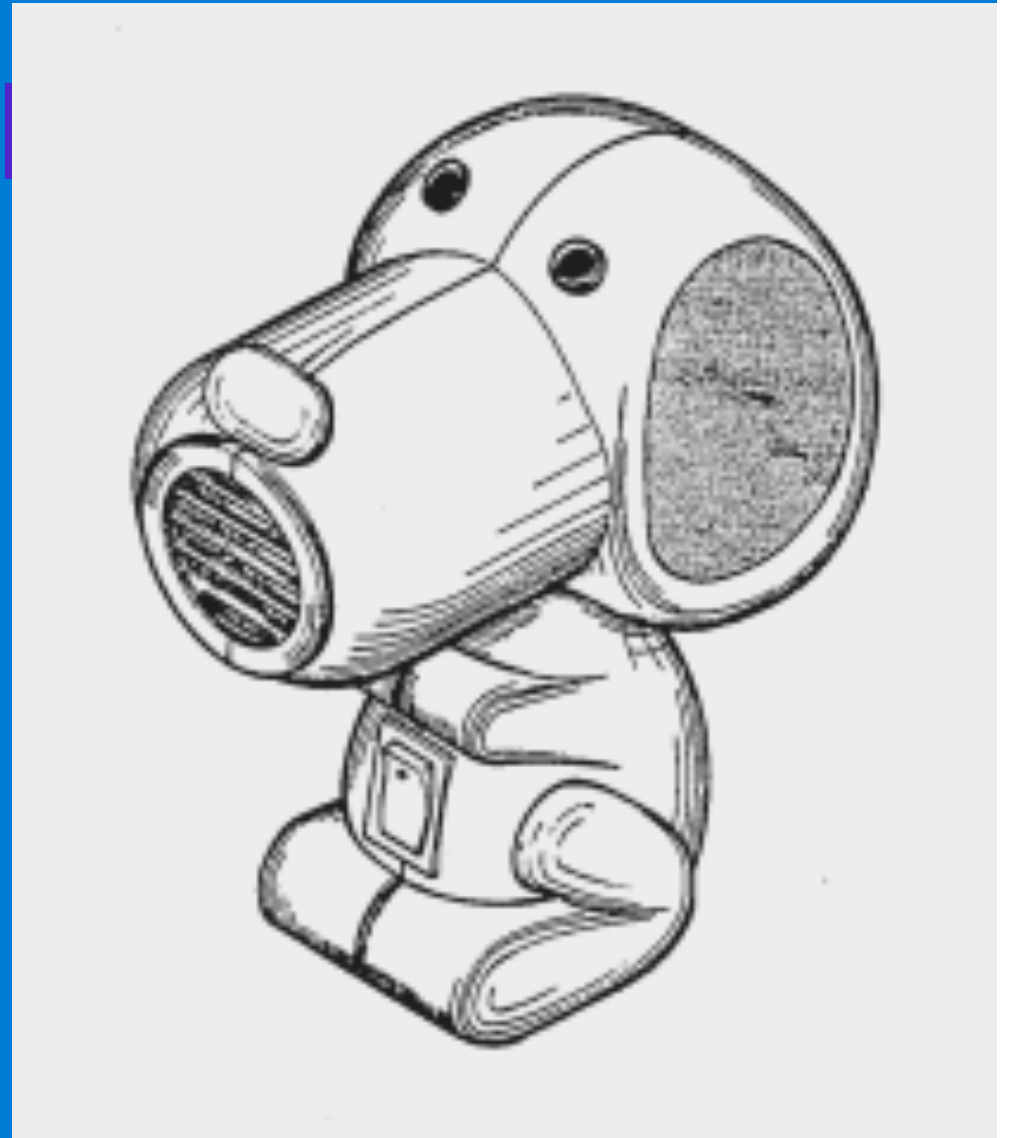
Frank Dimino

Feb. 1, 1994

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# Hair Dryer

Design Patent #D302,868



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## Where to Access Patent Info

- [www.uspto.gov](http://www.uspto.gov)
- CASSIS II (USPTO CD ROM product)
- Commercial databases listed on GTEL Website.
- Pub West – database supplied by US

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# Key Sections of a Patent

- Title
- Inventor
- Claims
- Assignee (Not all patents are assigned)
- Summary
- Current U.S. Class
- Cited References
- Drawings

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# Cited References

- US patents
- Foreign patents
- Journal articles
- Technical Reports

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# Methods to Research Patents

- Keyword searching (will not retrieve all relevant patents)
- Class and subclass searching - best way to search.



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An Agency Of The United States Department Of Commerce

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## TOP NEWS

### Commerce Under Secretary and Orlando Congressman Highlight Orlando's Innovation and Employment

*Focus on importance of intellectual property protection to Orlando's economy*

Under Secretary of Commerce for Intellectual Property and Director of the U.S. Patent and Trademark Office (USPTO) Jon Dudas, joined by U.S. Representative Tom Feeney (R-FL), on Friday told reporters on a conference call that protecting intellectual property against piracy and counterfeiting is a key part of economic growth, particularly in Orlando. Dudas and Feeney emphasized that intellectual property theft costs U.S. businesses approximately \$250 billion annually and hundreds of thousands of jobs.

"Orlando is a leader in innovation and high-technology. Today's job numbers show that the U.S. has continued to add new jobs. Innovation in Florida is leading the way," noted Under Secretary Dudas.

>> [Read full story.](#)

### Bush Administration Releases Report On Intellectual Property Enforcement And Protection

On September 28 the Bush Administration released the 2006 Report to the President and Congress on Coordination of Intellectual Property Enforcement and Protection. The report sets forth the actions and initiatives that the U.S. government has taken over the past year to combat the rising tide of global counterfeiting and piracy, and notes the importance of these efforts because of the critical role intellectual property (IP) plays in the country's economic strength and the health and safety of consumers.

>> [Read full story](#) (exits www.uspto.gov)

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*of patent applications*



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Intellectual Property Help from  
the United States Patent and  
Trademark Office

**Proposed Rule Changes**  
to Focus the Patent Process  
in the 21st Century







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**Patents, Trademarks** and information about large groupings of **very similar items** are **not contained on web pages** but are accessed through **online database systems** that are linked **cannot be searched using FirstGov**.

**In order to search each database you must connect and follow its specific directions.** Below are connections to our search and status systems as well as links to material on our s crafting and conducting search queries. We have also included links to some popularly-requested non-USPTO databases.

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See <a href="#">Notes</a> below for more hints about using and viewing the patent database	<a href="#">Trademark Acceptable Identification of Goods and Services Manual</a>
Patent <a href="#">kind codes</a> (numbering formats)	<a href="#">Trademarks Official Gazette</a> ( <i>most recent five issues</i> )
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<a href="#">Available patent numbers</a> for database	MORE SEARCH RESOURCES
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<a href="#">Filing years and application serial numbers</a> - current series is 11 (since DEC2004)	<a href="#">Federal legislation</a>
<a href="#">Issue years and patent numbers</a>	
<a href="#">Sequence Listings</a> (biotech) - Publication Site for Issued and Published Sequences (PSIPS)	



## The 7-Step Strategy

1. [Index to the U.S. Patent Classification](#) (Paper, *Cassis* or USPTO Web) 

Begin with this alphabetical subject index to the *Manual of Classification*. Look for common terms describing the invention and its function, effect, end-product, structure, and use. Note the class and subclass numbers.
2. [Manual of Classification](#) (Paper, *Cassis* or USPTO Web)

Locate class and subclass numbers in the Manual. Note where the terms fall within the US Patent Classification System. Scan the entire class schedule, paying attention to the dot. Revise search strategy as needed.
3. [Classification Definitions](#) (Microfiche, *Cassis* or USPTO Web)

Read the definitions to establish the scope of class(es) and subclass(es) relevant to the search. The definitions include important search notes and suggestions for further searching.
4. [Browse Patent Titles and Abstracts](#) (*Cassis*, WEST - Web-based Examiner Search Tool or USPTO Web)

Check if you are on the right path; retrieve and browse through titles of patents and published applications in the given class and subclass. Or redirect the search: retrieve lists of patents published applications containing applicable keywords; note their class and subclass numbers and go back to Step 2. Remember that **Patents BIB** includes bibliographic information for patents from 1969 to present and published patent applications from 2001 to the present. *Cassis* includes the full-text of patents from 1971 to the present. USPTO databases on the Web include the full-text of patents from 1976 and images (searchable only by class or number) from 1998 to the current week, plus published applications from 2001 to present.
5. [Retrieve Subclass Listing](#) (*Cassis*, WEST or USPTO Web)

Once you have identified the relevant classes and subclasses, obtain a list of all patent numbers granted from 1790 to the present and all published applications from 2001 to the present for the class and subclass to be searched.
6. [Official Gazette - Patent Section](#) (Paper, Microform or USPTO Web)

Go to the *Gazette* and look for exemplary claim(s) and a representative drawing for all patents on the list(s) to eliminate patents unrelated to the invention. For published applications, view the complete document [on-line](#).
7. [Complete Patent Document](#) (Microfilm, Paper, *Cassis* or USPTO Web)

Search the complete text and drawing(s) of closely related patents to determine how differ-

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# Searching for spacecraft

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---

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Last Modified: Wed, 25

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Class 244

Subclass

158.1+

# Index to Manual of Patent Classification

## Class 244 AERONAUTICS AND ASTRONAUTICS

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Turn Outline

Select Largest Indent Level to be Displayed

- ☐ ☐ 1R
  - ☐ ☐ 1N
  - ☐ ☐ 1A
  - ☐ ☐ 1TD
  - ☐ ☐ 2
  - ☐ ☐ 3
  - ☐ ☐ 3.1
  - ☐ ☐ 3.11
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  - ☐ ☐ 158.2
  - ☐ ☐ 158.3
  - ☐ ☐ 158.4
  - ☐ ☐ 158.5
- MISCELLANEOUS**
- Noise abatement
  - Lightning arresters and static eliminators
  - Trailing devices
- COMPOSITE AIRCRAFT**
- Trains
- MISSILE STABILIZATION OR TRAJECTORY CONTROL**
- Remote control
  - Trailing wire
  - Beam rider
  - Radio wave
  - Automatic guidance
  - Optical (includes infrared)
  - Optical correlation
  - Celestial navigation
  - Radio wave
  - Inertial
  - Attitude control mechanisms
  - Fluid reaction type
  - Stabilized by rotation
  - Externally mounted stabilizing appendage (e.g., fin)
  - Removable
  - Sliding
  - Collapsible
  - Longitudinally rotating
  - Radially rotating
  - Extending beyond rear of missile
- SPACECRAFT**
- Tethered
  - Inflated
  - Spacecraft formation, orbit, or interplanetary path
  - Orbit insertion

Manual of Patent  
Classification

Hierarchal  
SYSTEM

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1R	<b>MISCELLANEOUS</b>
1N	• Noise abatement
1A	• Lightning arresters and static eliminators
1TD	• Trailing devices
2	<b>COMPOSITE AIRCRAFT</b>
3	• Trains
3.1	<b>MISSILE STABILIZATION OR TRAJECTORY CONTROL</b>
3.11	• Remote control
3.12	• Trailing wire
3.13	• Beam rider
3.14	• Radio wave
3.15	• Automatic guidance
3.16	• Optical (includes infrared)
3.17	• Optical correlation
3.18	• Celestial navigation
3.19	• Radio wave
3.2	• Inertial
3.21	• Attitude control mechanisms
3.22	• Fluid reaction type
3.23	• Stabilized by rotation
3.24	• Externally mounted stabilizing appendage (e.g., fin)
3.25	• Removable
3.26	• Sliding
3.27	• Collapsible
3.28	• Longitudinally rotating
3.29	• Radially rotating
3.3	• Extending beyond rear of missile
158.1	<b>SPACECRAFT</b>
158.2	• Tethered
158.3	• Inflated
158.4	• Spacecraft formation, orbit, or interplanetary path
158.5	• Orbit insertion
158.6	• Orbital control
158.7	• Aerobraking
158.8	• Automatic

# Manual of Patent Classification

Hierarchal  
SYSTEM

# AERONAUTICS AND ASTRONAUTICS

## Class 244

### SECTION I - CLASS DEFINITION

This class contains and is limited to:

1. Machines or structures adapted to be |  
completely or partially sustained by the  
air (e.g., winged aircraft, helicopters,  
parachutes, kites, balloons, etc.),
2. Machines or structures adapted to be  
propelled and guided or stabilized through  
the air (e.g., projectiles with fins, guided missiles

## **SECTION II - LINES WITH OTHER CLASSES**

### **Class 244 AND WITHIN THIS CLASS**

This class excludes toy or model aeronautical devices unless the invention is such that it also applies logically to full sized devices for actual use in carrying persons or cargo. For toy or model airplanes, etc., see Class 446,  
Amusement Devices: Toys, subclass 56.  
This class excludes motor vehicles for travel on land or water, and which vehicles are supported above said land or water by a relatively thin cushion of air between the



## SECTION III - REFERENCES TO OTHER CLASSES

SEE OR SEARCH CLASS:

Class 244

- 89**, Ordnance, subclasses **1.51**+ for bomb flare and signal dropping and subclass 37.16 for gun mounts on aircraft.
- 102**, Ammunition and Explosives, subclasses **337**+ for parachute flares, subclass 387 for parachute-carried drop bombs, subclass 405 for aerial mines, and subclasses 504+ for parachute-containing projectiles.
- 104**, Railways, subclass **23.1** for airplanes attached to or running on tracks.
- 123**, Internal-Combustion Engines, subclasses **41.56**+ for devices for cooling internal combustion engines by means of air including cowling devices for the

## 158.1 **SPACECRAFT:** Class 244 Subclass Def.

This subclass is indented under **the class definition**. Subject matter comprising a machine or structure especially designed for travel in the upper reaches of or beyond the atmosphere of a celestial body (e.g., Earth).

(1) Note. By "upper reaches of the atmosphere"

(2) is meant the height at or beyond which the atmosphere (if any) is incapable of providing

(1) lift or sustentation to a winged or other aircraft or (2) sufficient oxygen for operating the propulsion system of an aircraft.

(2) Note. A machine or structure (manned or unmanned) which is (1) disclosed as a body (i.e., satellite) which is to be placed in orbit about a cele

CCL/"244/158.6": 31 patents.

Hits 1 through 31 out of 31

Patents back to 1790 for  
244/156.8 (orbital control)  
Titles included back to 1976

PAT. NO. Title

- 1 [6,892,987](#) **T** [Predicting, bounding and mitigating satellite attitude disturbances arising from infrared earth sensors for satellites in inclined, elliptical orbits](#)
- 2 [6,845,950](#) **T** [System for high efficiency spacecraft orbit transfer](#)
- 3 [6,824,107](#) **T** [Artificial satellite with an orbit having a long staying time in a zenith direction, an orbit control method and a communication system therewith](#)
- 4 [6,725,012](#) **T** [Method for deploying an orbiting sparse array antenna](#)
- 5 [6,672,542](#) **T** [Method and system for controlling the eccentricity of a near-circular orbit](#)

(12) **United States Patent**  
**Aguero et al.**

(10) **Patent No.:** **US 6,459,206 B1**  
(45) **Date of Patent:** **Oct. 1, 2002**

(54) **SYSTEM AND METHOD FOR ADJUSTING  
THE ORBIT OF AN ORBITING SPACE  
OBJECT USING AN ELECTRODYNAMIC  
TETHER AND MICRO-FABRICATED FIELD  
EMISSION DEVICE**

(75) **Inventors:** **Victor Manuel Aguero**, Menlo Park,  
CA (US); **Richard Cosmo Adamo**,  
Palo Alto, CA (US)

(73) **Assignee:** **SRI International**, Menlo Park, CA  
(US)

(\*) **Notice:** Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 23 days.

(21) **Appl. No. 09/707,725**

(22) **Filed:** **Nov. 7, 2000**

**Related U.S. Application Data**

(60) Provisional application No. 60/208,346, filed on May 31,  
2000.

(51) **Int. Cl.<sup>7</sup>** ..... **H01J 7/24**

(52) **U.S. Cl.** ..... **315/111.81; 313/309; 313/310;**  
244/158 R

(58) **Field of Search** ..... 315/500, 111.81,  
315/111.21; 313/309, 310, 351; 244/158 R,  
164; 340/333

← **Title**

# Key Parts of A Patent Front Page

← **Filed Date**

← **Class**

# Patent No. 6,459,206 Continued

(57)

## ABSTRACT

A system and method for altering an orbit of a space object are described. An electrodynamic tether is deployed from an orbiting space object such that the electrodynamic tether is capable of producing electrical charge. A micro-fabricated charge-emitting device is placed at one end of the electrodynamic tether and has at least two terminals. One of the terminals is electrically connected to the tether to receive the electrical charge produced by the tether. A voltage source applies a voltage across the two terminals of the charge-emitting device to induce the charge-emitting device to emit the charge received from the tether. Depending in part upon the end at which the charge emission device is placed and upon the polarity of the charge emitted, emission of the charge raises or lowers the orbit of the space object.

**24 Claims, 16 Drawing Sheets**

## References Cited



### U.S. PATENT DOCUMENTS

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4,923,151	A	5/1990	Roberts et al. ....	244/158
4,926,056	A	5/1990	Spindt ....	250/423
5,132,597	A	7/1992	Goebel et al. ....	315/344
5,321,336	A	6/1994	Cirri ....	315/14
5,676,873	A	10/1997	Takase et al. ....	219/761
5,847,407	A	12/1998	Lucero et al. ....	257/10
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(List continued on next page.)

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A. Pedersen et al., "Methods For Keeping a Conductive Spacecraft Near The Plasma Potential", Proceedings of the 17<sup>th</sup> ESLAB Symposium on Spacecraft/Plasma Interactions and their Influence on Field and Particle Measurements, Noordijk, The Netherlands, Sep. 13–16, 1983. (ESA SP–198, publ. Dec. 1983).

P. M. Philips et al., "Development of Spindt Cathodes for High Frequency Devices and Flat Panel Display Applications", Part of the 4<sup>th</sup> International Conference on Millimeter and Submillimeter Waves and Applications, San Diego, Jul. 1998, SPIE vol. 3465.

(List continued on next page.)

Patent No.  
6,459,206

Journal articles  
Conferences

# CLAIMS

What is claimed is:

1. A system for altering an orbit of a space object, comprising:
  - an electrodynamic tether deployed from an orbiting space object and electrically connected so as to be capable of producing electrical charge;
  - a charge-emitting device located at one end of the electrodynamic tether and having at least two terminals, one of the terminals being electrically connected to the tether to receive the electrical charge produced by the tether;
  - a first voltage source applying a voltage across the two terminals of the charge-emitting device to induce the charge-emitting device to emit the charge received from the tether so as to alter the orbit of the space object; and
  - a second voltage source applying a voltage between one of the two terminals and the tether to connect that terminal to the tether and to provide a path through the charge-emitting device taken by the electrical charge when drawn from the tether and emitted by the emitting terminal.
2. The system of claim 1 wherein the two terminals of the charge-emitting device are a gate and an emitter, and wherein the gate is connected to the tether.



## BACKGROUND

1:

Systems for adjusting the orbit of spacecraft have required the launching of large amounts of propellants, such as gas, from the spacecraft into the space plasma environment to boost or reduce the orbit. Disadvantages with such techniques include the weight and complexities associated with storing the propellants on the spacecraft, with controlling the flow of the propellants, and with operating within the time constraints imposed by a finite propellant supply. Also, to maximize system effectiveness and prevent the unnecessary use of propellants, a separate supplementary system is required to monitor the use and flow of propellants.

2:

3:

A system that can reduce the amount of propellants is one employing an electrodynamic tether. An electrodynamic tether is, in general, a long conducting wire that is deployed from the orbiting spacecraft. The motion of the tether across a magnetic field induces a voltage along the length of the

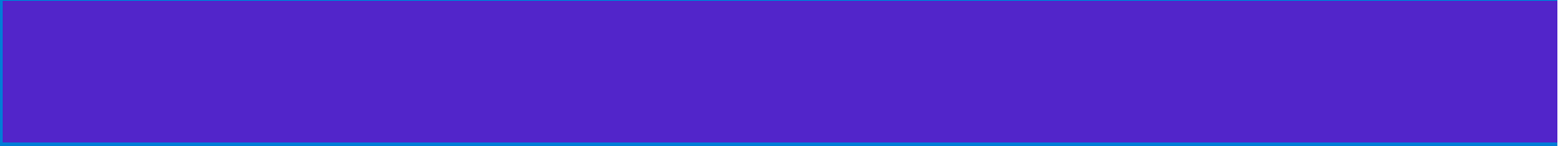
3:



## SUMMARY OF THE INVENTION

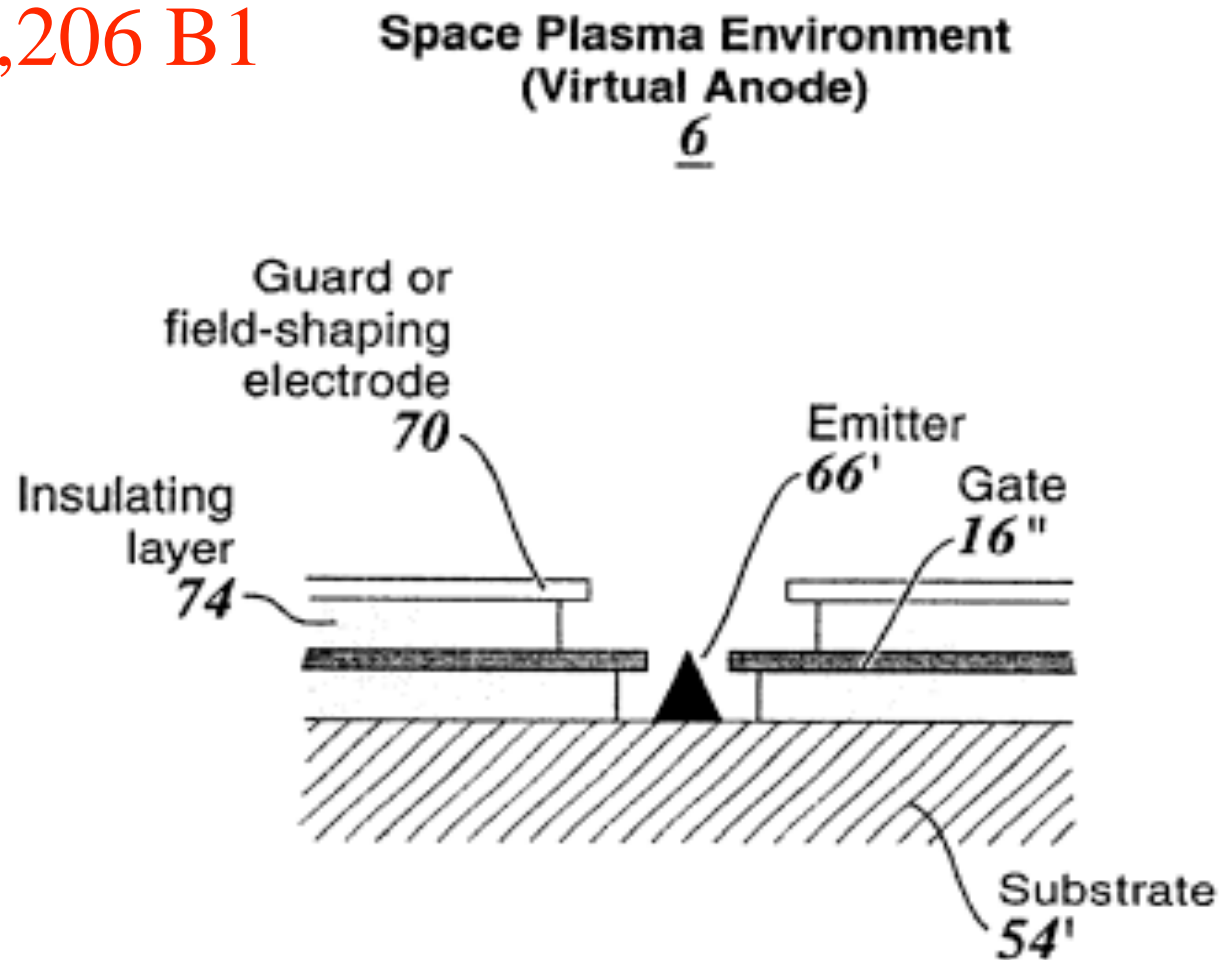
One objective of the invention is to provide a charge emitter that is suitable for use in space applications, i.e., a charge emitter that is lightweight, small in size, and reliable and robust in the space plasma environment. Another objective is to provide a charge emitter capable of emitting low levels of charge, positive or negative, for controlling the charging of a space object. Another objective is to provide a charge emitter capable of emitting large levels of charge, positive or negative, for use in adjusting the orbit of space objects. Yet another objective is that the charge emitter be capable of emitting charge without requiring high voltages. Still yet another objective is that the charge emitter be

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Patent #  
6,459,206 B1



***Fig.3***

FIG. 1 is a diagram of an embodiment of a system for measuring and controlling the electrical potential difference between an object and the ambient space plasma environment in accordance with the principles of the invention, the system including a charge-emitting device having a gate and an array of emitter tips;

FIG. 2 is a partial cross-section of an embodiment of a field emission device, which is a particular embodiment of the charge-emitting device of FIG. 1;

FIG. 3 is a partial cross-section of another embodiment of the field emission device;

FIG. 4 is a top view of an embodiment of the field emission device;

FIG. 5 is a plot of modeled I-V characteristics of one embodiment of the field emission device;

# What The Examiners Search

## Search Templates Defined

Search templates define the field of search, search tools, and search methodologies which should be considered each time a patent application is examined in that classification area. The templates describe search tools for U.S. and foreign patents and non-patent literature. Additionally, general Internet search tools used by patent examiners are listed.

The search templates are based upon input from patent examiners and other searchers at the USPTO and capture their institutional knowledge of the most relevant prior art search sources for determining the patentability of subject matter in the area of technology. The listed areas represent where (what resources) and how (methodology) most of the prior art considered in the examination process is found during the search process.

## AERONAUTICS AND ASTRONAUTICS

Classification 244/all - subclasses >> [view this class definition](#)

### U. S. PATENT RESOURCES.

### FOREIGN PATENT RESOURCES|

### NON-PATENT LITERATURE RESOURCES

#### CSA Technology Research Database (TRD)

Dialog Coverage: 1963 - present, Full Text: - N/A

#### Dialog Global Reporter

#### Gale Group Trade & Industry Database™

#### IEEE Xplore

#### Inspec (The Database for Physics, Electronics and Computing)

#### McGraw-Hill Companies Publications Online

#### NTIS: National Technical Information Service

#### ProQuest Direct

#### SciSearch: A Cited Reference Science Database

# Patents Search Template for Class 244

### INTERNET SEARCH TOOLS

An Internet search should be considered when a search of the resources listed above fails to locate relevant prior art. A preliminary Internet search may be performed to obtain an overview of the technology, and to identify additional search terms and related product information.

#### Google™

Google Coverage: - N/A, Full Text: - N/A

Internet search engine.

This search engine may provide information on broad topics, specific companies, devices, individuals, materials, products, and properties.

# Design Class

1	<b>SPECIAL PURPOSE VEHICLE</b>	307	.Straddle or motorized surfboard
2	.Combined, e.g., land-sea-air- type vehicle	308	type
3	..Amphibious	309	.Submersible
4	..Land and air	310	.Hydrofoil
5	.Air cushion		.Opposed hull skids forming longitudinal channel
6	.Sleigh or sled	311	..Laterally stepped
7	..Self-propelled (e.g., snowmobile	312	..Channel divided by keel or keel rib
8	..Standing occupant only	313	.Laterally stepped bottom
9	..With occupant support elevated from runner	314	.Longitudinal planing steps or strakes on bottom
10	...Straddle or flat riding surface type	315	.With cabin (4)
11	...Toboggan or skimming type	316	.Raft, float, or platform
12	.Armored	317	.Element or attachment (5)
13	.Firefighting	318	..Deck or cabin unit (6)
14	.Service vehicle (1)	319	<b>AIRCRAFT, SPACECRAFT, OR FUSELAGE</b>
15	..Dumping or trash handling	320	.Space satellite or habitat (7)
16	.Golf cart (2)	321	.Flexible or uniform-thickness material forming lift surface, e.g., parachute, paraglider, kite type, etc.
16.1	.Drone, guided missile, or rocket		
17	<b>VEHICLE DRAWN BY ANIMAL</b>		
18	.Body with cover	322	.Body supported
19	.Cart or sulky	323	.Lighter-than-air, i.e., lift provided by hot air or gas
20	.Element or attachment	324	Amphibious



Refine Search

CCL/D12/320

# Skycrane Landing System

PAT. NO.	Title
1 <a href="#">D505,105</a>	<b>T</b> <a href="#">Skycrane landing system</a>
2 <a href="#">D430,530</a>	<b>T</b> <a href="#">Personal air transport</a>
3 <a href="#">D418,475</a>	<b>T</b> <a href="#">Personal air transport</a>
4 <a href="#">D408,780</a>	<b>T</b> <a href="#">Vehicle for use in outer space as a space probe, planetary rover or space ship</a>
5 <a href="#">D401,209</a>	<b>T</b> <a href="#">Vehicle for use in outer space as a space probe, planetary rover or spaceship</a>
6 <a href="#">D396,685</a>	<b>T</b> <a href="#">Single stage to orbit spacecraft</a>
7 <a href="#">D386,255</a>	<b>T</b> <a href="#">Air purifier with illuminating outer ring</a>
8 <a href="#">D362,234</a>	<b>T</b> <a href="#">Single stage to orbit vehicle</a>
9 <a href="#">5,322,248</a>	<b>T</b> <a href="#">Methods and arrangements tailoring aerodynamic forces affor</a>
10 <a href="#">5,242,135</a>	<b>T</b> <a href="#">Space transfer vehicle and integrated guidance launch system</a>
11 <a href="#">D332,249</a>	<b>T</b> <a href="#">Simulator</a>
12 <a href="#">D332,248</a>	<b>T</b> <a href="#">Simulator</a>
13 <a href="#">5,141,181</a>	<b>T</b> <a href="#">Launch vehicle with interstage propellant manifolding</a>





(12) **United States Design Patent**  
**Rivellini et al.**

(10) **Patent No.:** **US D505,105 S**  
(45) **Date of Patent:** **\*\* May 17, 2005**

(54) **SKYCRANE LANDING SYSTEM**

(75) Inventors: **Tommaso P. Rivellini**, Montrose, CA (US); **Dara Sabahi**, Los Angeles, CA (US); **Jeffrey W. Umland**, Pasadena, CA (US); **Adam D. Steltzner**, Altadena, CA (US); **Alejandro M. San Martin**, San Gabriel, CA (US); **William Layman**, Oxnard, CA (US); **Edward C. Wong**, Arcadia, CA (US); **Allen Chen**, Pasadena, CA (US); **Robert M. Manning**, Pasadena, CA (US); **Eric M. Slimko**, Pasadena, CA (US)

(73) Assignee: **California Institute of Technology**, Pasadena, CA (US)

(\*\*) Term: **14 Years**

(21) Appl. No.: **29/195,691**

(22) Filed: **Dec. 16, 2003**

(51) **LOC (7) Cl.** ..... **12-99**

(52) **U.S. Cl.** ..... **D12/320**

(58) **Field of Search** ..... D12/319-345;  
244/158 R, 159, 160, 161, 162

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

4,697,767 A \* 10/1987 Witten et al. .... D12/320  
5,372,340 A \* 12/1994 Ihara et al. .... 244/159

\* cited by examiner

*Primary Examiner*—Marcus A. Jackson

(74) *Attorney, Agent, or Firm*—Christie, Parker & Hale, LLP

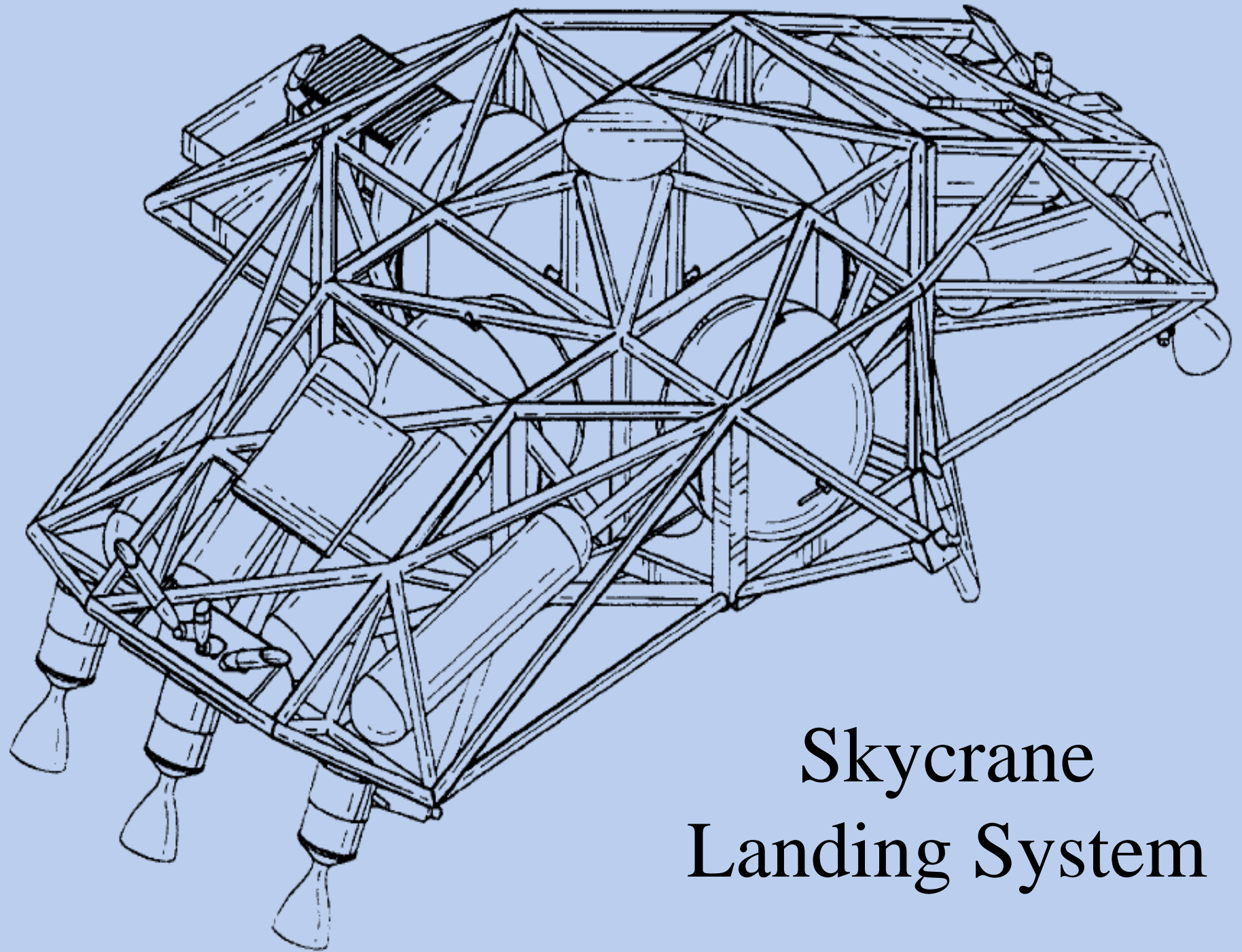
(57) **CLAIM**

The ornamental design for skycrane landing system, as shown and described.

**DESCRIPTION**

FIG. 1 is an isometric view of the skycrane landing system; FIG. 2 is a top plan view thereof; FIG. 3 is a front view thereof; FIG. 4 is a right side view thereof; FIG. 5 is a left side view thereof; and, FIG. 6 is a bottom plan view thereof.

**1 Claim, 6 Drawing Sheets**



Skycrane  
Landing System



### Issued Patents (PatFT)

(full-text since 1976, full-page images since 1790)

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- Patent Number Search
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### Published Applications (AppFT)

(published since 15 March 2001)

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Data current through October 26, 2006.

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in Field 1:

AND

Term 2:

in Field 2:

Select years [\[Help\]](#)

# Pre Grant Patents For Class 244 subclass 158.6

PUB. APP. NO.	Title
1 <a href="#"><u>20030222179</u></a>	<a href="#"><u>METHOD AND SYSTEM FOR CONTROLLING THE ECCENTRICITY OF A NEAR-CIRCULAR ORBIT</u></a>
2 <a href="#"><u>20030098810</u></a>	<a href="#"><u>System for determining precise orbit of satellite and method thereof</u></a>
3 <a href="#"><u>20020038840</u></a>	<a href="#"><u>Satellite, satellite control method and satellite communication system</u></a>
4 <a href="#"><u>20020036250</u></a>	<a href="#"><u>Method for maintaining the position of geostationary satellites</u></a>

## Results of Search in All Years db for:

IN/"Kamen, Dean": 76 patents.

Hits 1 through 50 out of 76














# Inventor Dean Kamen

Final 26 Hits

Jump To

Refine Search

IN/"Kamen, Dean"

PAT. NO.	Title
1 <a href="#">6,311,794</a>	 <a href="#">System and method for stair climbing in a cluster-wheel vehicle</a>
2 <a href="#">6,302,230</a>	 <a href="#">Personal mobility vehicles and methods</a>
3 <a href="#">6,247,310</a>	 <a href="#">System and method for control of fuel and air delivery in a burner of a thermal-cycle engine</a>
4 <a href="#">6,234,997</a>	 <a href="#">System and method for mixing and delivering intravenous drugs</a>
5 <a href="#">6,223,104</a>	 <a href="#">Fault tolerant architecture for a personal vehicle</a>
6 <a href="#">6,210,361</a>	 <a href="#">System for delivering intravenous drugs</a>
7 <a href="#">6,168,609</a>	 <a href="#">Catamenial collector and methods of use</a>
8 <a href="#">6,155,824</a>	 <a href="#">Apparatus and method for cleaning teeth</a>
9 <a href="#">6,092,249</a>	 <a href="#">Constant pressure seating system</a>
10 <a href="#">6,086,008</a>	 <a href="#">Apparatus and method for permitting introduction and withdrawal of a catheter</a>
11 <a href="#">6,077,246</a>	 <a href="#">Medical irrigation pump and system</a>
12 <a href="#">6,070,761</a>	 <a href="#">Vial loading method and apparatus for intelligent admixture and delivery of intravenous drugs</a>
13 <a href="#">6,062,600</a>	 <a href="#">Anti-tipping mechanism</a>

•  
•  
•

## Searching by Inventor

- Can search by inventor name back to 1976
- Pre 1976 – need to search by class and subclass



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- Patent Number
- Application Date
- Application Serial Number
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- Assignee City
- Assignee State
- Assignee Country
- International Classification
- Current US Classification
- Primary Examiner
- Assistant Examiner
- Inventor Name
- Inventor City
- Inventor State
- Inventor Country

Patents from 1790 through 1975 are searchable only by S Classification!

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AN/"Lockheed Martin Corp": 100 patents.

Hits 1 through 50 out of 100

Next 50 Hits














# Lockheed Martin Patents

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AN/"Lockheed Martin Corp"

PAT. NO. Title

- 1 [6,963,677](#)  [Optical memory and logic using cross-switches](#)
- 2 [6,961,431](#)  [Analog privacy scrambler and scrambling method](#)
- 3 [6,847,741](#)  [Optically induced total internal reflection X-junction waveguide optical switch, network and optical switching method](#)
- 4 [6,810,048](#)  [Virtual coherent signal controlled oscillator](#)
- 5 [6,714,663](#)  [Method and software-implemented apparatus for ground plane estimation in multi-dimensional data](#)
- 6 [6,697,996](#)  [Multi-dimensional packet recovery system and method](#)
- 7 [6,690,738](#)  [Trellis coded modulation system employing a flexible trellis coded modulation decoder](#)
- 8 [6,650,702](#)  [Blind initialization of decision feedback equalizer using an antenna array](#)
- 9 [6,636,127](#)  [Broadband turnstile waveguide junction](#)
- 10 [6,628,231](#)  [Location of radio frequency emitting targets](#)
- 11 [6,609,467](#)  [Elastomer mounted pallet](#)
- 12 [6,466,158](#)  [Identifying closely clustered moving targets](#)
- 13 [6,460,801](#)  [Precision guidance system for aircraft launched bombs](#)

## PATENT APPLICATION FULL TEXT AND IMAGE DATABASE

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PUB. APP. NO. Title

- 1 [20030222179](#) [METHOD AND SYSTEM FOR CONTROLLING THE ECCENTRICITY OF A NEAR-CIRCULAR ORBIT](#)
- 2 [20030098810](#) [System for determining precise orbit of satellite and method thereof](#)
- 3 [20020038840](#) [Satellite, satellite control method and satellite communication system](#)
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Quick Search

Search with keywords, or for persons or organisations

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Search using any of the available fields

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Search using application, accession, publication or priority number

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Browse or search the Classification System of the European Patent Office

## esp@cenet® and the IPC Reform IPC8

From the beginning of January 2006 the new International Patent Classification (version 8) will be in force. This will mean that there will be new, more powerful and focussed possibilities of searching patent documents.

esp@cenet users who are already familiar with ECLA will readily see that there are concepts and practices common to the new IPC8

The following is a simple description of how the IPC8 affects esp@cenet users. For more detailed information about IPC 8 please see:

<http://ipo-reform.european-patent-office.org/index.en.php>

In simple terms the new IPC 8 classifications come in 4 "flavours":

- ◆ Core level
- ◆ Advanced level
- ◆ Invention information
- ◆ Non-Invention information - sometimes called "Additional Information."

You will see "Non invention information" and "additional information" used interchangeably here and in other articles about the IPC8.

The Core Level may be thought of as a relatively low resolution, static, classification level. It will be revised on a three yearly cycle.

The Advanced Level can be considered as a high resolution, dynamic classification scheme that will be reviewed on a three month time-scale.

Invention Information is that which appears in the claims of the patent application - and will be classified according to core and/or advanced level IPC 8

Additional (non-invention) information appears in sections other than the claims, and can be prior art cited, or other kinds of explanations or historical information mentioned by the applicant. All of this additional information can be classified according to the IPC8 core or advanced level.

The following matrix representation may help you in visualising the 4 aspects of the IPC8:

	Core level	Advanced level
Invention	eg. A61L2/02	eg. A61L2/025
Non Invention (additional information)	eg. A61L2/02	eg. A61L2/025

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<b>Publication number:</b>	<input type="text"/>	WO03075629
<b>Application number:</b>	<input type="text"/>	DE19971031696
<b>Priority number:</b>	<input type="text"/>	WO1995US15925
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<b>Applicant:</b>	<input type="text"/>	Institut Pasteur
<b>Inventor:</b>	<input type="text"/>	Smith
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1	Displacement sensing system and method	in my patents list <input type="checkbox"/>
	<b>Inventor:</b> VUNKANNON ROBERT S JR (US)	<b>Applicant:</b> STIRLING TECHNOLOGY CO (US)
	<b>EC:</b>	<b>IPC:</b> G01B7/14; G01B7/14
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2	UNITIZED HYBRID ROCKET SYSTEM	in my patents list <input type="checkbox"/>
	<b>Inventor:</b> RUTAN ELBERT L (US)	<b>Applicant:</b> MOJAVE AEROSPACE VENTURES LLC (US)
	<b>EC:</b> B64G1/14; F02K9/60; (+2)	<b>IPC:</b> B64G1/14; F02K9/60; F02K9/72 (+4)
	<b>Publication info:</b> CA2519936 - 2004-10-07	
3	Network architecture and protocol for spacecraft systems	in my patents list <input type="checkbox"/>
	<b>Inventor:</b> MCDERMOTT SCOTT A (US); JORDAN LUIS G (US); (+2)	<b>Applicant:</b>
	<b>EC:</b>	<b>IPC:</b> G21C17/00; G21C17/00
	<b>Publication info:</b> US2006015299 - 2006-01-19	
4	METHOD FOR INCREASE OF ECONOMY OF OPERATION OF GAS-JET PROPULSION SYSTEM AT LIQUEFIED GAS	in my patents list <input type="checkbox"/>
	<b>Inventor:</b> SERHIICHUK BORYS VASYLIOVYCH (UA); KOSHKIN MYKHAILO IVANOVYCH (UA); (+3)	<b>Applicant:</b> STATE DESIGN OFFICE PIVDENNE I (UA)
	<b>EC:</b>	<b>IPC:</b> (IPC1-7): F02K9/42; F02K11/00
	<b>Publication info:</b> UA73803 - 2004-11-15	
5	Method and system for establishing communications with a spacecraft and other communications devices	in my patents list <input type="checkbox"/>
	<b>Inventor:</b> JENSEN JAMES W (US); GARDNER-SPRINGER COLIN M (US)	<b>Applicant:</b>
	<b>EC:</b>	<b>IPC:</b> H04B7/00; H04Q7/00; H04Q7/20 (+3)
	<b>Publication info:</b> US2006003782 - 2006-01-05	
6	DISTRIBUTED MODE SYSTEM FOR REAL TIME ACOUSTIC EMISSION MONITORING	in my patents list <input type="checkbox"/>
	<b>Inventor:</b> AUSTIN RUSSELL K (US); COUGHLIN CHRIS (US)	<b>Applicant:</b> TEXAS RES INTERNATIONAL INC (US); AUSTIN

## PROPULSION UNIT FOR SPACECRAFT, SERVICING SYSTEM FOR PROVIDING IN-SPACE SERVICE OPERATIONS, AND MODULAR SPACECRAFT

### Bibliographic data

#### Description

#### Claims

#### Mosaics

#### Original document

#### INPADOC legal status

**Patent number:** WO2005118394

**Publication date:** 2005-12-15

**Inventor:** KOSMAS CHARALAMPOS (CY)

**Applicant:** INTERSECURE LOGIC LTD (CY); KOSMAS CHARALAMPOS (CY)

#### Classification:

- **international:** B64G1/00; B64G1/10; B64G1/64; B64G1/00; B64G1/64; (IPC1-7): B64G1/10; B64G1/64

- **european:** B64G1/00A2; B64G1/10E; B64G1/64C

**Application number:** WO2005EP06069 20050606

**Priority number(s):** DE200410027405 20040604

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#### Abstract of WO2005118394

A propulsion unit (10) for attachment to a selected target spacecraft is provided, comprising a number of thrusters (12), a number of propellant storage tanks (20), and a docking facilitation system (14), said docking facilitation system (14) being set up to be removeably connectable to corresponding docking means of a further spacecraft. The docking facilitation system (14) provided for the propulsion unit (10) allows for in-space connection with another component, in particular an active component having control means and the like, rendering the formerly detached propulsion unit (10) controllable and maneuverable.

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inassignee:Boeing

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### INTEGRATED ALIGNMENT SYSTEM

US Pat. 3816935 - Filed Jun 19, 1972 - he Boeing Company

3 734483 ... 733757 ... Boeing ...

### INDUCTION HEATER APPARATUS AND SYSTEM

US Pat. 3845268 - Filed Feb 12, 1973 - he Boeing Company

3 734607 ... 733998 ... Boeing ...

### ROTARY HEAD ASSEMBLY FOR ROTARY WING

US Pat. 3880551 - Filed Nov 15, 1973 - he Boeing Company

3 734793 ... 734280 ... Boeing ...

### FLIGHT MANAGEMENT DISPLAY

US Pat. 3668622 - Filed May 21, 1970 - he Boeing Company

3 733739 ... 732984 ... Boeing ...

### BOUNDARY LAYER CONTROL AND ANTI-ICING

US Pat. 3917193 - Filed Jan 21, 1974 - he Boeing Company

3 735010 ... 734348 ... Boeing ...

### INTEGRATED NOZZLE

US Pat. 3774868 - Filed Dec 11, 1972 - he Boeing Company

3 734266 ... 733935 ... Boeing ...

### PASSIVE IDENTIFICATION SYSTEM

US Pat. 3878528 - Filed Oct 12, 1973 - he Boeing Company

3 734793 ... 734246 ... Boeing ...

### TRANSLATING SLEEVE VARIABLE AREA

US Pat. 3829020 - Filed Jun 13, 1973 - he Boeing Company



[Abstract](#) | [Drawing](#) | [Description](#) | [Claims](#)

**Patent number:** 3668622  
**Filing date:** May 21, 1970  
**Issue date:** Jun 1972  
**Inventor:** James R. Gannett  
**Assignee:** he Boeing Company

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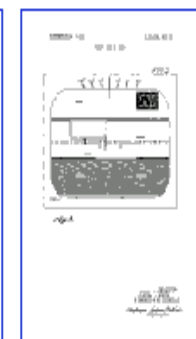
### Referenced by

Patent Number	Title	Issue date
<a href="#">3999007</a>	Aircraft visual approach/landing reproducer device and system	Dec 21, 1976
<a href="#">4015080</a>	Display devices	Mar 29, 1977
<a href="#">4040005</a>	Composite situation analyzer and instrument flight system	Aug 2, 1977
<a href="#">4121246</a>	Ground impact point prediction system concept for airdrops	Oct 17, 1978
<a href="#">4149148</a>	Aircraft flight instrument display system	Apr 10, 1979
<a href="#">4247843</a>	Aircraft flight instrument display system	Jan 27, 1981
<a href="#">4297691</a>	Figure displaying device	Oct 27, 1981
<a href="#">4312041</a>	Flight performance data computer system	Jan 19, 1982
<a href="#">4368517</a>	Aircraft landing display system	Jan 11, 1983
<a href="#">4415879</a>	Aircraft flight instrument display system	Nov 15, 1983
<a href="#">4454400</a>	Conformal head up display	Jun 12, 1984

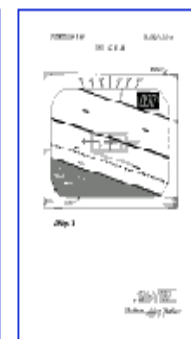
### Drawings



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# TRADEMARKS



# Trademarks

- A trademark is a word, name, symbol or device which is used in trade with goods to indicate the source of the goods and to distinguish them from the goods of others.
- A service mark is the same as a trademark except that it identifies and distinguishes the source of a service rather than a product.

Typed Drawing

# SPONGEBOB SQUAREPANTS TRADEMARK

Word Mark

SPONGEBOB SQUAREPANTS

Goods and Services

IC 041. US 100 101 107. G & S: entertainment services in the nature of an animated television series. FIRST USE: 19990717. FIRST USE IN COMMERCE

Mark Drawing Code

(1) TYPED DRAWING

Design Search Code

Serial Number

75354296

Filing Date

September 9, 1997

Current Filing Basis

1A

Original Filing Basis

1B

Published for Opposition

April 7, 1998

Registration Number

2355702

Registration Date

June 6, 2000

Owner

(REGISTRANT) Viacom International Inc. CORPORATION DELAWARE 1515 Broadway New York NEW YORK 10036

(LAST LISTED OWNER) VIACOM INTERNATIONAL INC. CORPORATION DELAWARE 1515 BROADWAY NEW YORK NEW YORK 10036

Assignment Recorded

ASSIGNMENT RECORDED

Attorney of Record

Michael Moaz

Type of Mark

SERVICE MARK

Register

PRINCIPAL

Live/Dead Indicator

LIVE



**Stephen Hillenburg**

**Sponge Bob Creator**





**Word Mark** HERSHEY'S KISSABLES  
**Goods and Services** IC 030. US 046. G & S: Candy. FIRST USE: 20051117. FIRST USE IN COMMERCE: 20051117

**Mark Drawing Code** (3) DESIGN PLUS WORDS, LETTERS, AND/OR NUMBERS

**Design Search Code** 01.05.01 - Sun, rising or setting (partially exposed or partially obstructed); Sunrise  
08.03.01 - Candy bars, (chocolate); Chips, (chocolate); Chocolate candies; Chocolate chips  
26.11.21 - Rectangles that are completely or partially shaded  
26.19.03 - Cones (geometric)

**Serial Number** 78785478

**Filing Date** January 5, 2006

**Current Filing Basis** 1A

**Original Filing Basis** 1A

**Owner** (APPLICANT) Hershey Chocolate & Confectionery Corporation CORPORATION DELAWARE 4860 Robb Street, Suite 204 Wheat Ridge COLORADO 80033

**Attorney of Record** Lois B. Duquette

**Prior Registrations** 2112374;2815737;AND OTHERS

**Description of Mark** The mark consists of HERSHEY'S in block lettering over the word KISSABLES which is printed in an arc. A tilted conical configuration design with a starburst is superimposed over the second S the A of KISSABLES. The conical configuration is stippled to make it look three-dimensional. Color is not claimed as a feature of the mark. The stippling is for shading purposes only.

**Type of Mark** TRADEMARK

**Register** PRINCIPAL

**Live/Dead Indicator** LIVE

Owner Name – Hershey  
Chocolate & Confectionery  
Corp



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(6) FOR SITUATIONS FOR WHICH NO DRAWING IS POSSIBLE, SUCH AS SOUND

<b>Goods and Services</b>	IC 038. US 104. G & S: BROADCASTING OF TELEVISION PROGRAMS. FIRST USE: 19610909. FIRST USE IN COMMERCE: 19610909
<b>Mark Drawing Code</b>	(6) FOR SITUATIONS FOR WHICH NO DRAWING IS POSSIBLE, SUCH AS SOUND
<b>Serial Number</b>	72349496
<b>Filing Date</b>	January 23, 1970
<b>Current Filing Basis</b>	1A
<b>Original Filing Basis</b>	1A
<b>Registration Number</b>	0916522
<b>Registration Date</b>	July 13, 1971
<b>Owner</b>	(REGISTRANT) NATIONAL BROADCASTING COMPANY, INC., THE CORPORATION DELAWARE 30 ROCKEFELLER PLAZA, ROOM 1081E NEW YORK NEW YORK 10112
<b>Attorney of Record</b>	GILLIAN LUSINS
<b>Prior Registrations</b>	0523616
<b>Description of Mark</b>	THE MARK COMPRISES A SEQUENCE OF CHIME-LIKE MUSICAL NOTES WHICH ARE IN THE KEY OF C AND SOUND THE NOTES G, E, C, THE "G" BEING THE ONE JUST BELOW MIDDLE C, THE "E" THE ONE JUST ABOVE MIDDLE C, AND THE "C" BEING MIDDLE C, THEREBY TO IDENTIFY APPLICANT'S BROADCASTING SERVICE.
<b>Type of Mark</b>	SERVICE MARK
<b>Register</b>	PRINCIPAL
<b>Affidavit Text</b>	SECT 8 (6-YR). SECTION 8(10-YR) 20011017.
<b>Renewal</b>	2ND RENEWAL 20011017
<b>Live/Dead</b>	LIVE

NBC Chime

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# Find the UPS trademarks

Hint: There are seven of them



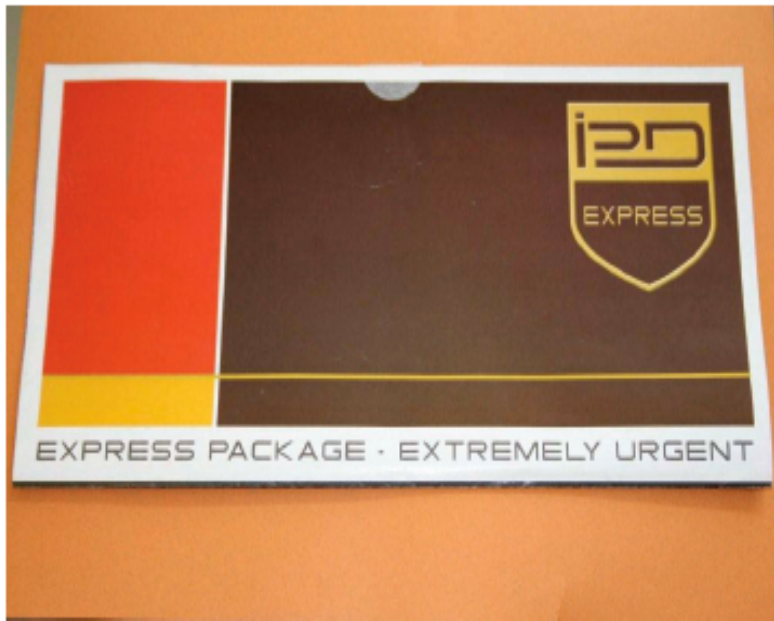
**WHAT CAN BROWN DO FOR YOU?®**

# Find the UPS trademarks

Hint: There are seven of them

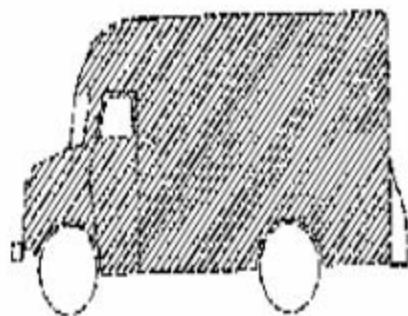


# Trademark Infringement



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# UPS Brown Truck

Goods and Services	IC 039. US 100 105. G & S: motor vehicle transportation and delivery of personal property. FIRST USE: 19170000. FIRST USE IN COMMERCE: 19170001
Mark Drawing Code	(2) DESIGN ONLY
Design Search Code	180505 290202
Serial Number	75039323
Filing Date	December 26, 1995
Current Filing Basis	1A
Original Filing Basis	1A
Published for Opposition	November 4, 1997
Registration Number	2131693
Registration Date	January 27, 1998
Owner	(REGISTRANT) UNITED PARCEL SERVICE OF AMERICA, INC. CORPORATION DELAWARE 55 Glenlake Parkway, NE Atlanta GEORGIA 30328
Attorney of Record	MONIQUE L. RIBANDO
Description of Mark	The mark consists of the color brown applied to the vehicles used in performing the services. The drawing is lined for the color brown.
Type of Mark	SERVICE MARK
Register	PRINCIPAL-2(F)
Affidavit Text	SECT 15. SECT 8 (6-YR).
Live/Dead Indicator	LIVE





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("Georgia Tech"[ON] or "university system of georgia"[ON]) and clothing[GS] and Buzz[B]

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[AT] Attorney of Record	[MD] Mark Drawing Code	[RN] Registration Number
[BI] Basic Index	[MI] Mark Index	[SF] Section 44 Indicator
[CB] Current Filing Basis	[MN] Mark Non-Punctuated	[SD] Single Design Code
[CC] Coordinated Class	[MP] Mark Punctuated/Word Mark	[SN] Serial Number
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[DD] Design Description	[OW] Owner Name and Address	[TC] Trademark Search Facility Classification Code
[DE] Description of Mark	[PD] Priority Date	[TD] Total Designs
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8	76564168	2930301		TARR	LIVE
9	76564167	2915848	YELLOW JACKETS	TARR	LIVE
10	76564166	2999728	GT	TARR	LIVE
11	76564164	2969376		TARR	LIVE
12	76564163	2901458		TARR	LIVE
13	76564162	3037145	SEAL OF THE GEORGIA INSTITUTE OF TECHNOLOGY 1885	TARR	LIVE
14	76477447	2864269	GTICES	TARR	LIVE
15	76317576		GEORGIA TECH ALUMNI MAGAZINE	TARR	DEAD
16	75628061		WM WEARABLE MOTHERBOARD	TARR	DEAD
17	75552998		WOVEN MOTHERBOARD	TARR	DEAD
18	75397638	2262359	NETCELERATE	TARR	DEAD
19	75361175	2268260	GEORGE P. BURDELL	TARR	DEAD
20	75293995	2176573	TOA	TARR	DEAD
21	75258766	2585561	GEORGE P. BURDELL	TARR	LIVE
22	75063147	2140032	GRAPHICS VISUALIZATION & USABILITY CENTER	TARR	DEAD
23	75057143	2060815	GVU'S WWW USER SURVEY	TARR	DEAD
24	75006049		MASTER MIND	TARR	DEAD
25	75005757		MIND MAZE	TARR	DEAD
26	74735396	2396106	GT	TARR	DEAD
27	74676858		GT STRUDEL	TARR	DEAD

OPPORTUNISTIC COMPUTING

78949474

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78940196

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78940134

TI:GER  
78291937

GEORGE P. BURDELL  
78118193

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76244543



## Selection of Application Type

Which type of form do you wish to use? Select from one of the two versions, *below*, and then click on the **CONTINUE** button at the *bottom of the page*.

### ☐ [TEAS Plus Form](#)

This form has a lower filing fee of \$275 per class of goods and/or services, but has **stricter** requirements, than the TEAS form, below. Select this option **ONLY** if you agree to:

- ♦ file a "complete" application that satisfies all requirements set forth in [Rule 2.22\(a\)](#), not only the regular "[minimum requirements](#)" for obtaining a filing date. Almost all fields in this form are mandatory;
- ♦ select the listing of goods and/or services for this application directly from the USPTO's [Acceptable Identification of Goods and Services Manual](#). While certain listings will allow for "[customization](#)," total "free-text" entries for identifications CANNOT be made;  
**NOTE:** We strongly recommend that you confirm that your identifications appear in the Manual (using the provided link, *above*) **BEFORE** even entering the TEAS Plus form; otherwise, you may spend time completing some of the application, only to discover you were not eligible for a TEAS Plus filing once you reach the Goods/Services section of the form. If the term(s) does not appear, you can request that an identification be added, by e-mailing [TMIDSUGGEST@uspto.gov](mailto:TMIDSUGGEST@uspto.gov); however, this would not enable you to file immediately. For more information on this process, click [here](#). The TEAS Plus version of the IDManual intentionally does not include items classified in Classes A, B, or 200, because those marks are not eligible for filing under TEAS Plus. Also missing are any listings that appear in the "regular" manual under "000," because correct classification is required under TEAS Plus, and classification for these listings varies according to the additional information provided within the listing.
- ♦ attach all required image files, where applicable, in the .jpg format (for specimens, foreign registration certificates, consents, evidence) (except for sounds marks, for which a .wav or MP3 file can be submitted separately);
- ♦ pay the fees for ALL classes at the time of filing;
- ♦ file certain later communications regarding the application, such as a response to an Office action, through TEAS. See [Rule 2.23\(a\)\(1\)](#) for the listing of forms that must be filed through TEAS; and
- ♦ receive communications concerning the application by electronic mail (e-mail) during the pendency of the application.

**NOTE:** If you use the TEAS Plus version of the form, you must pay an additional fee of \$50 per class if, at any time during the examination of the application, the Office determines that (1) the application did not meet the filing requirements for a TEAS Plus application as of the filing date, as set forth in Rule 2.22(a); (2) the applicant files a paper form after the initial application, but a TEAS form existed for that purpose, *e.g.*, a response to an Office action; and/or (3) the applicant refuses to receive correspondence from the Office by [electronic mail \(e-mail\)](#) during the pendency of the application.

### ☒ [TEAS Form](#)

**Suggested form choice**

You must select this option, having a filing fee of \$325 per class of goods and/or services, if you:

- ♦ cannot file a "complete" application at this time, satisfying all requirements as set forth in [Rule 2.22\(a\)](#), but instead can meet only the "[minimum requirements](#)" for obtaining a filing date. Only certain fields on this version of the form are mandatory;
- ♦ wish to make a "free-text" entry for the listing of goods and/or services for this application, rather than selecting the listing directly from the USPTO's [Acceptable Identification of Goods and Services Manual](#) (apart from any permissible "customization" within certain listings);
- ♦ are unable either to create or successfully attach in the designated portion(s) of the form a proper .jpg image file, if applicable for the application (for specimens, foreign registration certificates, consents, evidence);
- ♦ wish to pay for only one class at the time of filing, although the application as filed will consist of multiple classes;
- ♦ plan later to file certain communications regarding the application, such as a response to an Office action, in paper rather than through TEAS. See [Rule 2.23\(a\)\(1\)](#); and
- ♦ do not agree to receive communications concerning the application by electronic mail (e-mail) during the pendency of the application.

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